The Builder.

No. CCXCVII.

SATURDAY, OCTOBER 14, 1848.

PURSUING our observations on the building-stone of CAEN and its neighbourhood, it seems desirable, while repeating our caution against the use, externally, of the bottom bed—the *franc-banc*—that we should mention the opinions of some of the merchants who are disposed to find other reasons for the occasional failure of the stone rather than admit that they ship stone which must almost certainly decay. One considered that it was the stone which came from *wet* quarries, quarries to which the water gained access, that decomposed when exposed to the action of the weather; and a second maintained stoutly that the bottom bed was as good as the others,—that the stone from it was always chosen by the builders in England (without knowing any thing about its position in the quarry of course), and that when Caen stone failed, it was an evidence that the *sea-water* had been over it. To keep back the bottom bed they thought was out of the question, as they would in that case be obliged to charge a greater price for the stone they did sell.

We are not prepared to assent to these opinions, especially as the whole tenor of their conversation shewed clearly (notwithstanding they would not admit it in words) that they had little real faith in the durability of the bottom bed.

The injurious effect of sea-water on stone has been often urged, but has few believers at this time. The failure of the stone in Blackfriars-bridge was ascribed to the action of sea-water; but recent inquirers have found more likely causes in examining the position whence the stone was taken. In Portland, Mr. Smith tells us, there is a bath formed of Portland stone, which has been there, partly immersed in the sea, for forty or fifty years, and of which the stone is quite sound.

Bad stone would probably be injured by sea-water, but we are not disposed to think that good sound stone would be. At all events, in respect of its being the sole cause of the decay of Caen stone, the opinion is not tenable for an instant; there being much of the stone used in modern times in the immediate locality which is in a bad state.

The fact that when the early churches in Caen were built, the masons probably restricted themselves for a supply of stone to the upper beds, not desiring large blocks, as they had but rude means for raising them, may go some way towards explaining the good state in which much of the masonry remains both there and in England where it was used.

The difference to be observed, looking at some of the modern buildings, between parts of the structure is very striking. At one of the guard-houses, for example, perhaps fifty years old, while the majority of the columns are sound and perfect, two or three of them are honeycombed all over, and fast falling to ruin.

Amongst the older modern buildings which seem to have stood well, is that appropriated to the law courts, built perhaps seventy years ago, and which is now in the course of repair. The large Ionic portico and remainder of the entrance front have been scraped, and probably repaired, and looks the same as new. The columns of this portico have a curiously ugly effect, in consequence of the "swell" given to them, which renders them larger in their diameter at about one-fourth of their height from the ground than they are at the bottom: they look like gigantic skittles or attenuated water-butts.*

In some even more recent buildings, where care was used, the stone looks very beautiful. An instance of its differing durability presented itself to us in the churchyard of the ancient church of *La Haute Allemagne*, close to the quarries, where we found some of the tombstones, dated 1833, much decayed, while others, marked 1814, were as perfect in all their lines as when first cut; and these not more so than some parts of the tower of the church (the only part of the original edifice remaining, restorers having been at work), which, although 700 years old, appear quite sound.

We observed here and elsewhere that the stone from the *franc-banc* is used not merely for mangers, troughs, and other purposes, but is preferred by the local builders for quoin-stones and window-dressings, because it is softer; and speedy decay, the certain result, is not considered by *them* a vital objection!

As we have already said, when the Caen stone is cut up and dry, it is scarcely possible to say what bed it is from, although when first quarried or thoroughly wetted, the bottom bed is easily to be distinguished; and we may add to our remarks in the last paper under this head, that the stone from that part of the quarry has then a *soapy* feel, hangs to the rasp when scraped, and is sometimes redder in grain.

The consumer, in England, is necessarily to a great extent at the mercy of the merchants who supply it: it is necessary for the latter, if they would maintain the market, to use the greatest care, and to justify the confidence which must per-force be placed in them.

We must not have it inferred from what has been said, that none of the stone from the best beds decays: we are not by any means in a position to say so: indeed it is more than likely that there may be defective stone at times in each of the beds, but we have no reason to doubt that much of it is an admirable and lasting material.

Further, there are particular positions in which it is more liable to decay than in others. Thus in several buildings we observed that the Caen stone immediately on the plinth was decomposed, while in all other parts it was sound. This may result either from the retention of moisture in the bottom course by the harder and less absorbent stone employed for the plinth beneath, or by the splashing up of the rain-water from the projecting stone. The same effect is sometimes observable at the same point in brick buildings with a stone plinth.

The stone occasionally used for plinths of buildings where the *Allemagne* stone is used above, as, for example, at the *Havre* Museum, described in a previous paper, is from

THE RANVILLE QUARRIES,

a few miles off,—a stone which is, however, chiefly used for water-works, for which purpose it is said to endure well.

These quarries are seen on the *left* bank of the Orne, when going up that river towards Caen, five or six miles perhaps from that city. They are opened in the face of the cliff, 18 or 20 feet from the surface; have loose and friable beds at top, and yield, apparently, but a small quantity of good stone. The beds are level. Judging from the quantity of *débris* lying about, it would seem that these quarries are ancient, and have been worked many years: they extend perhaps half a mile along the banks.

The material is a coarse-grained highly-chrystalline limestone, which may have been oolitic, and that which comes from the *good* beds seems well calculated to endure. The quay walls at *Havre* are faced with it, and appear to stand well. We understood that a quantity of it had been sent to Dover for the Government works now going on there; but it was thought in Caen not to be a good specimen. There is a considerable difference in the stone from different parts of the same quarry.

It appears to be a general rule, though not without exceptions, that the *coarse-grained* limestones and oolites will stand the weather better than those with finer grain; while in the case of sandstones the reverse is thought to be the case,—those of the finest grain lasting the longest. We shall shortly lay before our readers an account of the *Aubigny Quarries*, near *Falaise*, which produce what appears to be an excellent stone, and is now being brought into the market.

In the present and the previous papers we have laid before our readers some general observations on the building stone of Caen, but we are prepared, and hope, to do something more than this. When in the quarries, we marked on the untouched rock certain portions of each bed, saw them removed from their position, and shipped for England. These specimens, to the extent of some tons in weight, are now in our hands, and we propose, in conjunction with Mr. Smith, whose added experience will ensure accuracy, to subject them to a series of experiments, both chemical and mechanical, and lay the results before the public. To carry these out thoroughly and carefully will of course require time, but none will be lost.

GEORGE GODWIN.

* We measured the diameter of one of these columns, and found it 11 feet 3¼ inches at the bottom, while at one-fourth its height from the ground it is 11 feet 8 inches.

THE STORY OF BUILDING.

IT was a long time ago, and we can hardly judge of it, when man first began to build. He pulled down branches one day, perhaps, and set them up against a rock-side, or around the parent trunk, and covered them with twigs and leaves, and crept in under for rude shelter, and thus began to build. Not barbarously though, perhaps,—for he *learnt* barbarism afterwards,—sank into the Indian of America, the South Sea islander, the rootdigger and bushman of the Cape, by gradual influences not yet begun. He was still doubtless in the balmy East; he had the spreading shadow of the forest for noonday shade, and for cover from the rain—store for a few fruits—shelter, perhaps, if he were luxurious, from the night dew in his sleep—he had built himself a house and home.

Presently his sons ranged abroad, emigrated, spread around into other districts of the earth, and founded the small beginnings of the nations. Their diversity was greater now than before. Different climate, different life, different circumstances in every way, formed and moulded them in difference. Now some theorists would have us think that still their houses and homes would be the same,—the old pattern of their father in the eastern garden alike in the sultry south and the cold tempestuous north, in the luxuriance of the forest and amongst the barren stones of the mountains. Innovation, they tell us, must be

accident, or spring out of old patterns by self-evolution and spontaneous growth. So far true, doubtless, that Ham in Ethiopia and Japhet in Gothland might, equally with Shem, who settled beside his father at home, think first of the old home-pattern for everything else as well as his house: but with different sky overhead and different earth underfoot and different things around in every shape, that which formed the old pattern for the old home now formed a new one for the new; and the different nations built different houses for themselves. The hunter and the shepherd drove stakes into the ground, and covered them with skins, and tied them with thongs; the cultivator in the north piled up a grotto of stones; the dweller in the marsh wove wattle-work of canes, and coated it with mud.

The several buildings of the nations having been thus originated, as men advanced in ingenuity their houses increased in contrivance. Tools were invented and crafts learned; and the story of building progressed step by step with constant improvement. But all this history is among the unrecorded history of the world, and we lose it, and must take it up again where records begin,—although the loss is perhaps of no mighty moment either, as the story is simply this,—that for their chief and lasting material the foremost in building at length adopted *stones;* and ingenuity found means for hewing them from the rock, shaping them with tools, building them up in structure, and even carving them in ornament. How much of this had been done before the works which still stand as memorials and first examples for our history, of course we can only guess at; and if we would (as it is our purpose to do) inquire into the spirit of the practice of various times,—the right and wrong, better and worse, of their building,—we can commence practically only with the commencement of definite record, and turn to Egypt and India.

By this time men had multiplied into myriads, and had been tossed about by the troublous agencies of rude humanity, till they had gathered themselves into governments, and constructed schemes of law and order, and constituted dignities and rule, and formed national interests and aims and purposes. Otherwise no structures of theirs could have lived throughout so many centuries as to our day. But live they do, and in magnitude and vastness of patient labour enough to startle the mind and to proclaim them as the work, not of uncultivated or barbarian men, but of mighty peoples, well advanced in practised ingenuity and studied wisdom of the mind.

In early philosophies these two agencies—the truthful thinking of the mind untrammelled, and the feeble thinking of the mind too much restricted to individual resources—combine to produce a species of powerful thought and simple wisdom, self-involved all the while in superstitious faith and misleading fancy, which is so different from the system in which we live at the present day—of truth, by the mere discovery of error, and error through established traditional educational obliquity of judgment—that we can hardly form a proper estimate of the spirit of ancient nations at all. The expositor and guiding teacher of our day, in almost every branch of knowledge, is the old-fashioned man,—he who carries in his heart and soul simply traditions—the institutions of his fathers, the *dicta* of their records and remains, most filial reverence for their venerable ways. And although the self-important soothsayer of old Egypt, musing moodily over a fable as he stalked among the reverential crowd, might seem not much removed in practical influence from the spirit of our old-fashioned man, yet we shall find that the ancient teacher, weak and consequential as he was, was perhaps less doggedly preventive of progress than is the modern; and, half-seeing, as he must have been, was perhaps less obstinately dull of sight. What are the differences of influence between the ancient spirit and the modern we need not care to inquire, till we come to look into the peculiar weaknesses of the modern; in the meantime we shall inquire into the strength and vigour of the ancient, and we shall find peculiarities there which it will be useful to trace. For the strength and vigour of the ancient is more positive,—that of the modern, more negative; the ancient weaknesses are more negative—want of light, not blindness,—the modern weaknesses more positive. The modern disciplinarian is a dutiful son teaching children,—the ancient disciplinarian was a father teaching men.

Therefore, in the building of the ancient nations—the Hindoos, the Egyptians, the Persians, and (judging from what record we possess of their works) the Jews—we observe, in the midst of all that which we call rudeness and crudity, and notwithstanding the similarity which circumstances produced in their systems, a boldness and originality of fancy which causes us only to regret that their record is so imperfect. Be assured that they were mighty thinkers—the wise men of that old day,—in spite of their fetishism and astrology and omen-seeking, men in real original comprehension of pure truth beyond our reach,—their weaknesses the wants of opening life, our strength the mere experience of age,—their strength the vigour of youth, our weakness the feebleness of dotage.

The building of the great Assyrians, and several other nations of those ages, seems to be utterly without memorial,—perhaps from the destructiveness of war; and the works of those nations of whom memorials are extant—in India, Egypt, and Persia,—together with those of the Jews, from the idea we are able to form of them from the description of the temple—sufficiently clear to be reconcileable with the idiosyncracy of the family,—these works, although possessed of strongly marked distinctive features of original conception, are still, so far as our present history is concerned, to be taken as one class and step in building.

The material here is *stone*. The common edifices of these nations, we are reasonably allowed to think, were of some wood construction, upon the analogy of the accounts of building operations given throughout the Old Testament writings; but what were the principles followed we are quite unable particularly to ascertain, as no remains of such building exist, even in description. The imperishable stone, however, of the temples of Egypt and India is a perfect record, and in these we have our earliest specimens of the great building works of man.

It is folly to teach that architecture sprang from religious feeling—that churches are its noblest means of art—that nothing else is truly worthy of its name, and so forth; but it is undoubtedly true that, with those old nations, it was in their temples to divinity that their skill was most powerfully exerted, and all the resources of the mind most fully brought into requisition. The sentiment of religious veneration was the strongest of which the human mind was then possessed. And this, notwithstanding all the bloodshed and tyranny of those times, for the reason simply that their religion was based on different principles from ours. To build a house to Deity must have been a work always of great virtue, and not to be lightly undertaken or slightingly performed; but to raise a mighty temple, like those of Thebes, in world-enduring stone, was a purpose to inspirit a generation and spread wonder and envy through the world.

And we must not forget their tombs. Next to the mightiness of the temple of Deity, came the solemn grandeur of the mausoleum of the dead. Great men and heroes died and were buried, and venerating worshippers built over them everlasting monuments. And kings, too, built mausoleums for themselves; and put forth their utmost power, while they lived, to secure the utmost perpetuation of their fame when they should be dead. The poor man raised over the grave of his son a carved and painted post, commended it to the care of the unseen agencies, and had thus recorded for an age his honour of the departed; but Pharaoh brought ten thousand slaves, and built a pyramid or hewed a vast cavern in the mountain, and set up images and carved pompous inscriptions, and ordained that a nation should follow him to burial and seal up the mighty tomb, for the opening of astonished men when thousands of years had gone by.

No less exalted sentiments than these could account for the stupendous ruins we behold. We turn, then, to examine the spirit of their building.

The material may be taken, then, as simply stone (what brick structure remains is quite insignificant), and the principles evolved are worthy of study. Some antiquaries appear to think that the edifices or works more properly *built*, succeeded and were moulded after the cavern works, or those more properly *excavated*,—that these ancient builders of Egypt and India formed their first temples and tombs as excavations in the rock, and built their structural temples and tombs at an after date, and followed the old excavational model. But this is only another manifestation of our old enemy, the prejudice against human ingenuity. If such had been their mode of operation, we should not have had it to say, as we have it to say, that their principles were worthy of study, but quite the reverse. A cavern dug out of the solid rock, and a house built up of stones, are things of very widely different principles; and to say that these ancients knew no better than to build up their houses of stone after the model of the caves their fathers hewed out of the mountain, however consistent such procedure would be with the spirit of modern fancy, is a libel. More likely it is that they were somewhat to blame in copying in their excavation-works the forms of their building-work, as we may observe in the larger cavern temples in the straight lintel and flat ceiling, and the too *column*-like pier; and it is, of course, no argument to tell us how manifestly, if it be so, the caverns are all more ancient than the buildings,—because we can reply that there have been previous buildings of which no trace remains. The massiveness of their building work, which in some eyes seems deducible from an imitation of the cavern work, is properly to be referred to the simplicity of their mind, their small experience, and their purpose of mightiness and enduring strength. If their building had been fashioned on a cavern model, we should have seen a ponderous gothic, with heavy vaults and huge buttresses. Instead of this, however, the style of building is exactly in accordance with the principles of the material, large stone, courts of great columns, and great walls, with great lintel work of small span.

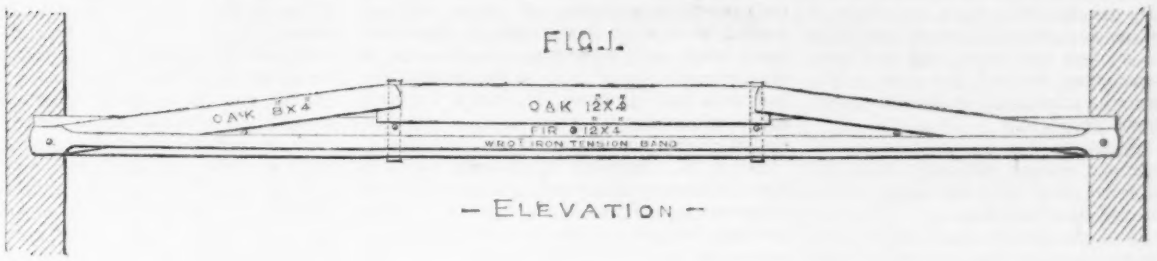
The same unbelievers in man's intellectuality, of whose theories we have already complained, tell us again that the Egyptian principle of the inclining wall is copied from the pyramids. And in this they would deprive us of a feature of excellence and characteristic spirit which we ought to be allowed particularly to set down to the credit of these old architects. Those of us who have never visited the Nile, if we can divest our minds of the Piccadilly specimen, and paint in the fancy the full effect of such a structure as that of Apolinopolis Magna, will give to the inclining wall the merit of one of its best principles of simple structural beauty. If anticipation be admitted in our history, let us observe that the mediæval architects possessed it in another form, and relied upon it as a grand part of their system; and even in almost the same form in such a case as the simple round tower of the early churches, and the towers of their castellated structures. In the works of the classic styles also, and in the Italian sometimes, it is equally present. So that we must not say that the old Egyptians copied it from the accident of their pyramids, but give them the honest credit of an excellent principle which later builders equally approved after them, and which it is worth our while to study for our own improvement, happening to be deficient therein.

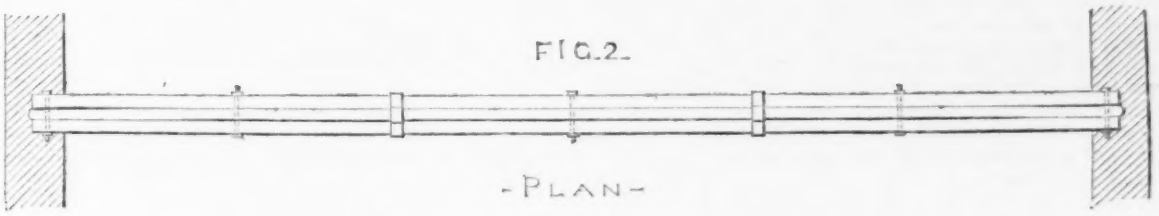
Still, however, this principle in the Egyptian works, in its fullness and precise management, is quite different from the others we have mentioned. It is a broad-based, bold, strong principle, in particular force, imparting to the structure its broad-based, bold, strong character, with a virtue peculiar to those buildings beyond all buildings of the after world, as the mind of man itself seems to have been more simply massive in its vigour in these old days than ever since.

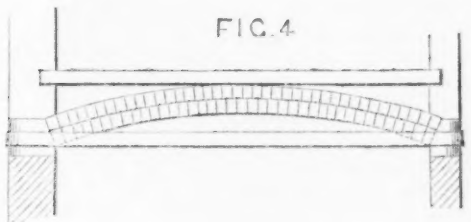
The direct result of the manner of building under review is grandeur in magnitude and simplicity; and the details of structure and decoration were calculated fully to carry it out. The enrichment, in the best works, was simple and severe, rude in design, merely because design was in its infancy; but, although often without principle, seldom averse to truth.

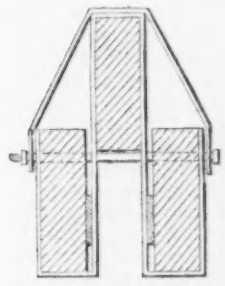
In the late works of the period—chiefly in Persia and India, when more of luxury and refinement had crept into the habits of the people—more of endeavour after elegance is observable, and more enrichment and intricacy;

GIRDERS AND ARCHES AT MIDDLESEX HOSPITAL.









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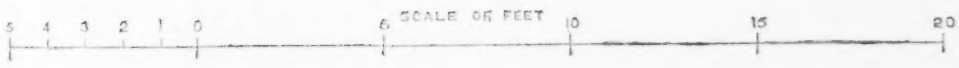


and thus, the infancy of design being not yet surmounted, the greater demand upon the unpractised fancy produced the result of more frequent aberration, and there is more to condemn than in the earlier works, and perhaps less to praise: a story this, which has often to be told in many forms, in all histories, as well as ours; for in nothing is the vigour of the prime of life allowed to last, or the freshness of summer to have no end, but always old age and weakness—autumn and the sere and yellow leaf—lead inevitably on to the tomb and winter of the world.* K.

ELECTRO-TELEGRAPHIC.—An experiment was lately made at Manchester by Mr. Cox, superintendent of the Electric Telegraph Company, as to the practicability of passing electric currents along covered wires under water. The wire was of copper, wrapped with cotton, and then passed through shellac, and coated outside with India-rubber (cold naptha being used to cement the latter). A portion of the wire, including a coil of about half a mile in length, was submerged in the river Irwell. Communications were passed along with the ordinary facility. —— A new Metropolitan Telegraph Company has been announced, under the name of the General Telegraph Company.

PEAT TILES.—A description of tile is being manufactured for the use of his estates by Mr. Wason, of Corwar, consisting entirely of peat, and cut out of the moss by an instrument for the purpose.

* To be continued.

NOVEL GIRDERS AT MIDDLESEX HOSPITAL.

VERY considerable additions and alterations, at a large cost, are being made at Middlesex Hospital. In the course of the works some girders have been put up, the arrangement of a working man, J. Alderson, which deserve illustration. The main point in the arrangement is the introduction of a continuous thin wrought-iron tension band, as shown by the annexed elevation, plan, and transverse section. The truss is formed of oak, secured at the foot to the tension band, and has at each side a flitch of deal 12 inches by 4 inches, the whole very ingeniously strapped and bolted together. The span of the girder represented is 27 feet 6 inches, and the height of it in the centre 22 inches.

We are told that they were tested by means of the hydraulic press. When the pressure was raised to 9 tons 2 cwt., the deflection was $1\frac{7}{8}$ inches. The pressure being taken off, they sprang back to their position.

The same principle has been applied to brick arches where there is no abutment, and they are intended to carry landings. Two pieces of stone are introduced to form abutments, and these are bound together by a thin wrought-iron band, as shown by the diagram.

NEUBER'S WASHABLE WATER VARNISH is intended for maps, drawings, &c., and requires no size or other previous preparation. It appears to answer the purpose very well, and will be found useful.

ARCHITECTURAL ASSOCIATION.

THE opening meeting of the session was held on the evening of Friday, October 6th, several gentlemen of eminence in the profession being present. The walls and tables were covered with architectural drawings and sketches. Some beautiful models by Mr. Day, of Southwark, were on the table.

Prof. Donaldson took the chair, and, after the minutes of the previous meeting had been read and confirmed, stated that he had been requested by the late president, Mr. Robert Kerr (who was prevented attending the meeting), to preside over the early part of the proceedings, in order to introduce to the association their new president, Mr. C. Creeke. He experienced great pleasure in observing the progress which the association had made in one year, and had no doubt that it would produce architects of eminence. He had seen exhibitions of drawings by students in France and Italy, but the exhibition of that evening convinced him that English students were able fully to compete with them. He was very glad to see that that carelessness of drawing which was very prevalent a few years ago, existed no longer. He had looked round the rooms, and had seen original designs and delineations of existing remains which shewed that the rising generation of architects possessed a feeling for ancient precedents, an originality of taste, and a power of drawing which were to him peculiarly gratifying. The professor alluded to some botanical studies by Mr. Dwyer, which were hung on the walls, and urged strongly the importance of an acquaintance with nature

for the perfection of art. The productions of the vegetable kingdom were of the greatest value in suggesting new forms for ornamental detail. He had lately heard the tale of Vitruvius, about the origin of the Corinthian capital, treated with greater levity than he thought it should be: as a matter of history the fable was worthless, but the moral was excellent. The professor then vacated the chair to Mr. Creeke, whom he introduced to the association as their future president.

Letters of apology for non-attendance, but expressing their cordial sympathy with the association, were read from Mr. Ferrey, Mr. G. Godwin, and Mr. G. Bailey.

The report of the session 1847-48 was then read to the meeting, shewing very satisfactory advance.

Mr. W. Young then moved the adoption of the report, congratulating the members generally on the promising state of the association with regard to the number of members, and the state of its funds. He called the attention of the visiters to the sketches made in the class of design, which were the production of six months only, and hoped that the association would, in the forthcoming session, memorialise the institute to take into consideration the abuses of architectural competitions, which was a subject of great consequence to the younger members of the profession. He hoped that this society would always look up to the institute with respect, and felt much gratified at seeing several of its members present.

The president stated that Prof. Cockerell had expressed his warm sympathy in the objects of the association, and had only been prevented from attending by an engagement on the continent. The president then delivered an able address, taking for his subject the art-memorials of England, considered as exponents of the spirit of the age in which they were erected, shewing how every structure was a reflection of the minds and dispositions of the men of the days in which they were erected. The same principle was traced through the feudal castles of the Normans, the monkish architecture of the middle ages, and the styles which prevailed subsequent to the reformation. The parallel was brought down to our own time, and the present state of our architectural prospects was touched upon, special reference being made to the practice of adjudication by committees of taste.

Prof. Donaldson thought the paper just read was most suggestive; it was a subject of great practical usefulness. It had been said that the student of zoology, when he finds a tooth, can from it determine the form and structure of the animal to which it belonged: give to the architect an antique memorial, and he will from it describe a whole nation. Chester was a most remarkable city, and so was Coventry, but the men who built Coventry must have been of a more refined class than those who erected Chester. Go to the city of York, and you have a city embattled and fortified, or go further north, to Edinburgh, and you see in the *ancient* portion—the castle and the rock—the characteristics of a hardy, warlike race; and then cast your eye below, and you see *modern* Edinburgh, extending its ramifications over the plain,—a perfect emblem of a busy, plodding, peaceful people.

Mr. Billings expressed himself much pleased with the proceedings of the evening. He was glad to hear that the association purposed to get up an annual architectural exhibition. He felt quite confident in its success if put in practice. He perhaps ought not to grumble at the Royal Academy: he had had seven drawings in last year's exhibition: four were hung near the ceiling, three were placed near the ground; but this was not the worst of it;—his *eighth* drawing had been rejected, although he had sold it next day for thirty guineas: this was surely a fact worth recording. Allusion had been made to modes of getting up drawings: he certainly had a prejudice in favour of skies and landscape, because they showed the connection of the buildings with the surrounding scenery; the Greek skies harmonized admirably with the Greek style, which, when transported into this climate, produced, in his opinion, dead failures. The way in which the Gothic structures harmonized with English hill and valley was worthy of remark.

Mr. C. H. Smith said, that although not an architect, he was a great lover of architecture, and being *stonewise* rather than *otherwise*, he would make a few observations on that material. The structures of the middle ages and the portico of St. Genevieve of Paris, were peculiar examples of large buildings erected with very small stones. Mr. Smith made some very interesting observations on the increased use of iron at the present day, and said that he would be always happy to afford information to any member of the association on subjects within his own province.

Mr. J. W. Papworth made some observations on Saxon architecture, and remarked with reference to the connection between history and art, that art was always at its zenith when commerce was at its highest prosperity, which he illustrated by referring to Athens at the time of Pericles, to Rome, Florence, and France under Louis XIV.—Mr. Scoles, as secretary to the institute, expressed the interest which he felt in the welfare of the society, and his readiness to lend his assistance to the association in anything that they might do with reference to architectural competitions, and to lay before them what the institute had done on the subject.

Mr. Jacob Bell and Mr. Dwyer briefly addressed the meeting; the latter gentleman taking up the theme started by Prof. Donaldson, and urging the importance of the study of botany to the architect. The acanthus had been copied, modified, remodified, and used *usque ad nauseam*, and he hoped the British flower gardens would suggest some new ideas for architectural detail.

LECTURES ON PRINCIPLES AND PRACTICE OF ORNAMENTAL ART.

THE GOVERNMENT SCHOOL OF DESIGN.

On Friday evening in last week Mr. Ralph N. Wornum gave the first of a course of lectures on the History, Principles and Practice of Ornamental Art, and sketched the manner in which he proposes to divide his subject.

Omitting mention of the historical course, we may say that in the *Analytic* course he proposes to treat of the principles and objects of decoration, giving an analysis of the various styles and the motive or sentiment by which each is characterised, so as to present an æsthetical view of the subject. After explaining the term *æsthetic* as expressing sensuous perception of the beautiful, Mr. Wornum gave an exposition of the importance of observing *fitness* and *utility* in ornamental designs; and illustrated the motive causes of the three primary forms of ornament by examples of use, symbolism, and embellishment, from Egyptian chairs, the winged globe of the Egyptian temples, and the so-called egg-and-tongue moulding of Greek architecture, which he proved to be derived from the horse-chesnut ἐχινος. Other motives were adverted to, and that of ostentation was shown to be a constant indication of barbarism and decay of taste, as instanced in the passion of the savage for mere glitter and finery, and that of the civilized man for mere display of wealth. Every gaudy elaboration of form and colour is not ornament. Forms of beauty are as strictly dependent on natural laws as the forms of use, and above all it is necessary to bear in mind the *fitness* of a design to its destined use. The essential principles and elementary laws of ornament are contrast, unity produced by symmetry, balance, and proportion of parts, repetition in series—horizontal, diagonal, vertical, curvilinear, &c. Every beautiful form or shape is composed of symmetrical parts: these principles illustrated in the kaleidoscope, in decoration of surfaces, diaper work, paper-hangings, architectural mouldings. Ornamental forms are rather suggested by than imitated from natural objects. This constitutes the distinction between an ornament and a picture. The painter imitates natural forms, the ornamentist only applies them. It is against reason to suppose there can be any beauty in impossibilities and absurdities. The ornamentist should be rational when he can. The remarkable passage from Vitruvius was cited in condemnation of the vicious taste of the style of decoration known as the Pompeian or grotesque style, falsely denominated the Arabesque.

The *Practical Course* will furnish a general knowledge of every mechanical process and condition of reproduction which it is necessary the students should observe, in order to render their designs capable of being executed by the manufacturer. As an example of the kind of practical information which he should supply in this course, Mr. Wornum explained the process of manufacturing paper-hangings by printing with blocks, and pointed out the conditions to be observed by the designer. In conclusion, the lecturer observed that all ornamental manufactures have been most popular and most successful in those periods when the greatest efforts have been made to render them objects of taste; so that, taking a mere utilitarian view, it is the interest of the manufacturer to cultivate beauty of design to the utmost of his power; but we must also regard the moral and social advantages of a universal diffusion of artistic taste. The object of this school is not to aggrandize, but to disseminate art. Neither is it for the manufacturer only, but also for the consumer; for gratifying and elevating the minds of the family of the daily labourer It is not, therefore, the architectural decorator alone who will fulfil its great mission, but the designer of those articles of use and comfort which our manufacturers send to the remotest regions of the globe. "It rests with you, then," said the lecturer to the students, "to make this school a source from which all the suggestions of the beautiful, and every benefit that can result from its contemplation, may flow in an ever-increasing stream, even to the utmost limits of society. Let the furniture and domestic utensils of the *rich* and the *poor* differ only in *material*, not in qualities of taste; so that the cottage of the peasant may, notwithstanding its frugal simplicity, be as refined and as cheerful in its degree as the more gorgeous palace of the prince. The potter's clay is as capable of displaying the forms of beauty as was ever marble of Paros, or the famed bronze of Corinth or of Delos, or, as is now, the purest gold of Brazil. The Egyptian potter, more than three thousand years ago, produced with his simple earth forms as beautiful as all the wealth and art of Greece and Rome combined have ever accomplished since. And what is the fatality that hangs over us that *our* poor alone should be wholly debarred from the enjoyment of the beautiful? If they can be reproached as indifferent to or incapable of appreciating such things, whose fault is that? They cannot appreciate what they have never seen; and while our manufacturers have for ages overwhelmed *their* markets with the most outrageous abortions in design that could well be conceived, how is it possible that these people should be otherwise than unconscious of any notion of art or idea of beauty? But this is not altogether the fault of the manufacturer. It is to the indifference or ignorance of the designers that we must attribute it. Just or not, such is the manufacturers' complaint, and it is for you to look to this, and to render the reproach impossible at least for the future. But you must look to it with both your eyes. Little is to be hoped from you if you turn only one eye here while the other is fixed on the doors of the Royal Academy. Persevere where you are—a high mission calls you here—the *cultivation and the elevation of the million* by the dissemination of those forms of beauty and taste which it is in your power to identify with the designs of even the most ordinary of our manufactures. Be of good heart, an adequate reward is ever awaiting honest industry; and, be assured, that by industry alone can talents, however brilliant, be successfully developed."

Dalmellington Iron-Works. — These works, belonging to the Messrs. Houldsworth, Glasgow, were blown in for the first time on Monday week, and the first casting took place on Wednesday. The machinery was found to work smoothly, and everything went off well. Ayrshire is now nearly girdled round with iron-works; and, should trade improve, many more will be set going, as minerals and coals are found in abundance in almost every corner of the county. An English Company has been exploring the hills around Dalmellington for the last few weeks, and have found lead, black-band ironstone, &c., in great abundance. —*Glasgow Herald.*

AN ARCHÆOLOGIST ON ARCHÆOLOGY.*

THE deposits of time and of a former race, whether of the elegant Etruscan vase or the huge fossil skeleton, are gathered up by the palm of the archæologist, and history marks their records with notes of admiration! Mere admiration, however, is not his legitimate object,—his desire, on the discovery of a fresh novelty, being to compare the products of a remote age with those of the current era, and thus to mark the progress of art, of knowledge, of civilisation, and refinement.

A very slender signet ring, found in one of the vaults at Stanford Bury derives an interest from the mere conjecture that it may be one of those "light summer rings" alluded to by Juvenal when lashing the effeminacy of the dandies of Rome, the great satirist little dreaming the day would come when the *barbarian*, the future dandy of Britain, would, in his own sole person, wed effeminacy to a beard? Thanks to the poets of antiquity, we can glean from them the minutiæ of the manners of a people: through the smiles of a Horace or the frowns of a Juvenal we trace the ridiculous or the flagitious of the era in which they flourished. History gives the *generale*, but satire the *personnel* of every period: without the censures of a Juvenal we could never have dreamed of the degree of effeminacy of the men or the masculinity of the Roman women, and, trifling as such objects may appear, they contribute to the agreeable variety of archæological pursuit. The time has arrived when those most ignorant of its utility will accord its value, when semi-barbarism chuckling with conceit, shall no longer pronounce the antiquary

"——————— the slave of whim,
Thanking his stars he's not a fool like him."

Is it nothing to explore the solitudes of the six and twenty cities and temples and ruins of central America? To translate the hieroglyphics of its walls and pyramids, to prove from its altars that its living children were worshippers of their living god, the Sun? That they were the pledge of prophecy, the gleanings of Tyre, saved from the slaughter of a demoniac king?

These cities had long slumbered under the black mould of oblivion, till the step of the antiquary startled their silence, and ere long their most valued treasures—the sculptures of their temples and their palaces,—shall record their histories on the walls of our British Museum. Already have the cities of Palenque, of Uxmal, Ocosingo and Copan, revealed much of their hidden knowledge. Some future adventurer from our shores, thirsting for more, shall,

"With giant grasp fling back the folds of night,
And bring the buried fugitives to light."

It is from what has been we may augur of what will be;—the shadows of the past become the beams of prophecy,—

"Dim rays cast forward by old time,
Shot glimmering o'er his dark abyss."

and man reads his future destiny where history hangs her records in Time's roofless temple! With such unerring guides for our judgment, may we not predict with certainty, the day will come when after the lapse of ages, the feet of the future antiquary (wearied with the search) may inquire on what spot stood the modern Babylon—London! The day shall come when the very shadow of Time's wings shall so often have kissed her burial, it shall sweep away the last hillock of the dust that marked her silent and capacious tomb! When we contemplate such events, who but must exclaim—"What in this world is permanent?" Even worlds themselves are but the food of eternal change.

"Yes, Time shall feel this world's last shock,
See the race of the planets run;
Shall dash his glass in the molten rock
As it mingles with the sun!"

Every nation, every people, every city, shall become a subject for the antiquary;—the winds of desolation shall fill the ruins strewn over the once living masses, sighing sad epitaphs to the feast of death!

What profound sensations do not such reflections awaken in the breast of the antiquary and the philosopher, who glancing down the backward path of time link the past with the present and the future!

"Look through the framework of a brighter sphere,
And read the solid mass we tread on here."

Honour then to the studies of archæology and to the spirit that fosters them! May the patrons of this society see deposited within these walls the reliquiæ of remote ages, both natural and artificial, and may the literati—the *élite* of the county—come here to behold and contemplate in their specimens the wonders of God and the knowledge of man!

* From an address by Mr. Inskipp, read at the last meeting of the Bedfordshire Architectural Society, mentioned in our last number.

ARRANGEMENT OF HOUSES TO PREVENT FIRE.

MR. EDITOR,—We have long been promised, and are anxiously looking forward to, Lord Morpeth's *amended* Metropolis Buildings Bill; and from the patience exhibited by his lordship in carrying through the Health of Towns Bill, we may confidently anticipate not only another Act, but a *really amended* Act. But while we are full of hope, let us not forget the old story of the showman, who proclaimed to a wondering crowd that his caravan contained two most astonishing curiosities,—the one a sea-horse, and the other a "wusser,"—and how the eager visiters, having disposed of the former, impatiently sought a peep at the more wonderful and mysterious part of the exhibition, the "wusser;" and how, at length, they descended from the caravan after being favoured with a sight of a smaller animal of the same genus as the former, and which the showman, with much seeming simplicity, informed his patrons must, by reason of its inferiority to the former, be a "wusser," or, in more genteel and grammatical phrase, a "worse one." We are all acquainted with the Act now in force; let us hope that we shall not be surprised by a "wusser." We would rather hope, however, that when the Bill comes before the public, it will be such a Bill as, whilst it shall impose no *unnecessary* restrictions, will, at the same time, fully secure for us all the proper objects of a Metropolitan Buildings Act—viz., ample security (in every sense) to individuals as well as to the public, against fire, and, to a reasonable extent, the aids to the promotion of health. Let us hope, too, that there will be no difficulty, uncertainty, or tediousness, in enforcing a strict observance of all the provisions of the Act in behalf of these objects.

These few remarks are, however, only preliminary to one or two humble suggestions of a practical nature, which I am desirous to put forward, for the consideration of the parties intrusted, or to be intrusted, with the preparation of the Bill. I consider, and I have no doubt that you, Mr. Editor, will agree with me, that for this huge metropolis, looking at the number of its inhabitants, and the ways and means had recourse to by a large proportion of them to ensure a place of habitation, and looking also at the lamentable daily accounts of the destruction of life and property,—any Act of Parliament for the "prevention of mischiefs by fire," should have, for one of its grandest objects, the prevention of the spread of fire from apartment to apartment, and from floor to floor, in dwelling-houses. I am aware of the importance of bearing in mind that there is a market price for buildings; but no large reform or improvement can ever be effected without seeming, for the moment, to do some little violence to parties interested in the then present state of things. As regards buildings, however, I think I may say that any violence which I shall propose would be only imaginary, as legislative improvements in buildings would meet with an early and ready remunerative acknowledgment; for where is the occupier of a house who would hesitate to pay a merely nominal tax, for the advantage of having a house so built as to ensure the safety not only of its contents, but also of the lives of its inmates.

But to come immediately to my object. I have to propose that, in the erection of dwelling-houses, no *open* timber floors, ceilings, or partitions, be admitted, as it is well known that fire, without draft to assist it, is not a dangerously destructive element, but that, with this ally, there is no limit to the range of its greedy and devouring appetite. I would therefore insist that all internal partitions be composed either entirely of brickwork, or of brick nogging or pugging; that the floors, if not composed entirely of fire-proof materials, should, in like manner, be filled in solid with some incombustible materials; and that the stairs, if not of stone (which they might be without any great increase of expense), should be (that is, the steps and risers) fixed upon some solid and almost wholly incombustible material, the construction of which might follow that adopted for the floors. So far these suggestions have reference only to the prevention of the spread of fire, but probably some further regard should be had to the stability of the building in case of fire arising. By the existing law fourth-rate buildings may be built with one brick party walls, but no timbers may be laid endwise into any party wall within 4 inches of its centre, and thus fourth-rate houses may be built without any material structural assistance being derived from or given to the party wall on either of its sides, except, at least, by placing the timbers on corbels or shoes. To remedy this, I would propose that substantially no party wall should be less in thickness than one brick and a half, and this could be effected by one-fourth only of the wall being of this thickness. The result of this would be to afford, to some extent, better means of connecting the floors and partitions, &c., with *each* of the four walls of the building, instead of throwing nearly the whole duty on the front and back walls, and incurring the liability, in case of fire, of the whole of the internal constructions of the building falling in on being deprived of their support in any lower story of the building.

I trust I have made myself sufficiently understood, without entering into any details of the construction—a point, indeed, which I have avoided, as I am aware that others before me have already made public their views on the subject of fire-proof constructions in connection with domestic architecture; but before concluding I must venture to suggest for consideration whether the rules of the Buildings Act, regulating stairs and accesses, might not be transposed so far as they are made to apply to particular classes of buildings—that is to say, that hereafter *dwelling-houses* should be required to have such appendages of fire-proof materials, whilst for *public buildings*, such as schools for day instruction, churches, chapels, &c., wooden stairs, if desired, should be allowed, a reservation, however, being made in respect of hospitals, colleges, and all other buildings occupied by night (as well as by day) as dwellings, so as to ensure ample protection to the occupants in cases of fire. There is also one matter more to which I would direct attention, and that is the importance of requiring that in every dwelling ready means should be provided for escape, in case of fire, through or into the roof, whereby to obtain access to the roofs of the adjoining houses, or to the fire escapes or other source of safety: as a matter of course a ladder should always be in readiness as a means of ascent from the topmost floor. ALIQUIS.

P.S. The importance of the above remarks are confirmed, in my opinion, by the account of the late fire in the parish of Whitechapel, which was attended with a serious loss of life under more than ordinarily distressing circumstances: see the *Times* of the 18th inst.

EFFECT OF IVY ON MASONRY.

SIR,—In order to strengthen the opinion of those persons who assert that the growth of ivy upon the walls of churches causes a disruption of the masonry, I beg to communicate through the medium of your pages the following instance.

One of the angle buttresses of the south aisle of Stone Church, Kent, has one of its sides covered with ivy, the stem of which, between 2 and 3 inches in diameter, first makes its appearance at the top of the base of the buttress, at least 2 feet from the ground.

Here it has forced out one of the stones, and after showing its stem the height of the first quoin, it disappears in the buttress, and again emerges at the height of another quoin, causing, in its progress from the ground, a fissure in the masonry and brickwork of considerable extent.—I am, Sir, &c.

Gravesend. ALFRED BEVAN.

STUDY FOR ORNAMENTATION FROM THE HAWTHORN.

STUDY FOR DECORATION FROM THE HAWTHORN.

Annexed is a sketch for an ornamentation from nature, from the common hawthorn, applicable for carving, &c., viz., a panel moulded and sunk. The four compartments around the centre may each be varied in detail. I have reversed the one sketched to show the effect. The centre is composed of five leaves; the small flowers confined to three in number. The variations of course are infinite, and the delight in composition amply repays the time spent in so doing.

121, Drury-lane. G. B. C.

CLEANING AWAY CHOLERA.

The General Board of Health have issued a notification respecting the Diseases' Prevention Act, which contains the following passages:—

"Great benefit having been derived from the cleansings that were resorted to on the former visitation of cholera, and experience having shown that preventive measures against cholera are also preventive against typhus and other epidemic and endemic diseases, the boards of guardians should carry into immediate effect all practical measures of external and internal cleansing of dwellings in the ill-conditioned districts.

The chief predisposing causes of every epidemic, and especially of cholera, are damp, moisture, filth, animal and vegetable matters in a state of decomposition, and, in general, whatever produces atmospheric impurity; all of which have the effect of lowering the health and vigour of the system, and of increasing the susceptibility to disease, particularly among the young, the aged, and the feeble.

The attacks of cholera are uniformly found to be most frequent and virulent in low lying districts, on the banks of rivers, in the neighbourhood of sewer-mouths, and wherever there are large collections of refuse, particularly amidst human dwellings. In a recent proclamation, issued for the protection of the population of the Russian empire, the important influence of these and similar causes has been recognized, and the practical recommendations founded thereon are 'to keep the person and the dwelling place clean; to allow of no sinks close to the house; to admit of no poultry or animals within the house, to keep every apartment as airy as possible by ventilation; and to prevent crowding wherever there are sick.'

Householders of all classes should be warned, that their first means of safety lies in the removal of dung heaps and solid and liquid filth of every description from beneath or about their houses and premises. Though persons long familiarized to the presence of such refuse may not perceive its offensiveness, nor believe in its noxious properties, yet all who desire to secure themselves from danger should labour for the entire removal of filth and the thorough cleansing of their premises; which also the law will require of each person for the protection of his neighbours as well as for his own safety.

Next to the perfect cleansing of the premises, dryness ought to be carefully promoted, which will of course require the keeping up of sufficient fires, particularly in the damp and unhealthy districts, where this means should be resorted to for the sake of ventilation as well as of warmth and dryness.

From information recently obtained from Russia it appears that in some barracks, and other places in which large numbers of people are congregated, where these conditions have been attended to in a manner that may be equally practised in private houses, there has been a comparative immunity from the prevailing epidemic, exactly as in this country, where in public institutions, though as yet by no means perfect in the means of ventilation, there has been an almost entire exemption from epidemics which have ravaged private houses in the very same districts.

But while a certain amount of cleansing can be effected by every householder, each in his own premises, the means of thoroughly purifying the densely populated districts are beyond the power of private individuals.

Accordingly, by the recent Act (11th & 12th Vict., c. 123, s. 1) in cases of inability, insufficiency, or neglect, the law has charged the cleansing operations upon certain public bodies —namely, "the town councils, or any trustees or commissioners for the drainage, paving, lighting, or cleansing, or managing or directing the police or any other body of a like nature, or any commissioners of sewers, or guardians of the poor."

By this Act it is provided, that upon notice

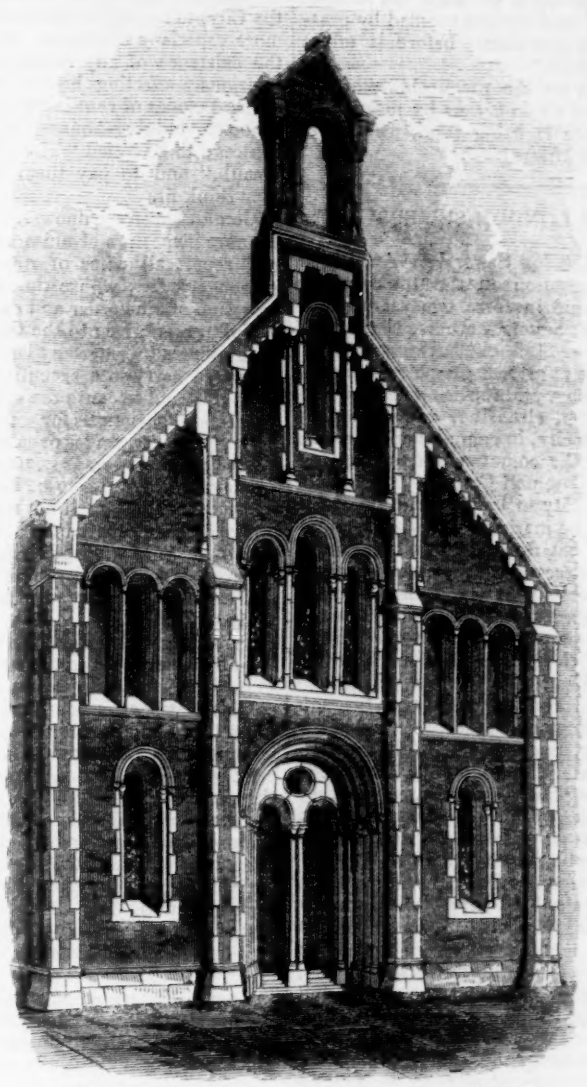
in writing, signed by two or more inhabitant householders, that any dwelling-house or building is in a filthy and unwholesome condition, or that there are upon such premises any foul and offensive cesspool, drain, gutter, or ditch, or any accumulations of filth, or that swine are so kept as to be a nuisance or injurious to health, the authorities shall examine or cause the premises to be examined; and if upon examination, or upon a medical certificate of two legally qualified practitioners, it appears that the nuisance exists, the public authority shall make complaint before two justices, who are required to make order for the removal of such nuisance. The amended provisions contained in this Act should be early considered, promulgated, and enforced, especially those for the proper cleansing of open and foul ditches near habitations, by the labourers under the direction of surveyors or trustees of highways."

NOTES IN THE PROVINCES.

THE Portland Prison is so far completed as to be capable of accommodating about 350 convicts for work on the breakwater, whose immediate arrival is now anticipated. The building already forms a very prominent object in the island.——The piling of the breakwater at the Dover harbour of refuge has been carried out to 5 feet water at low spring tides, and the masonry forming the pier on either hand is in rapid progress.——A new masonic hall has been recently erected at Newport, Isle of Wight.——The new church of Llanfihangel, Abercowin, was consecrated on Tuesday week. It has been built at the entire expense of Mr. Richard Richards, of Tregadwgan.——At Tavistock a new Guildhall has lately been erected in the castellated early English style, from a design by Mr. Jones, architect, prepared in accordance with the old portion of the abbey, on the site of which it has been built. The hall is 53 feet long and 23 broad, with 260 sittings, or standing room for 500. There is a police station beneath it, the cells of which are heated in winter by a hot-water apparatus, and ventilated by valves. The hall and station are fitted up for gas. There are other apartments, one 21 feet square, and the tower is to be converted into an observatory. The whole has been done at the expense of the Duke of Bedford, who lately drained the town and supplied it with water, fire-plugs, &c.——The chancel of Frome Church has been repaired under the auspices of the Marchioness of Bath. The great west window now displays a design in coloured glass, obtained by subscription. Three monumental windows of stained glass have also been placed in the church. ——The stone spire of St. Mary's Church, Snettisham, Norfolk, which is used by mariners as a sea-mark, being 105 feet in height, and with the church reaching an altitude of 177 feet, has recently been restored, the upper part to the extent of several feet reset, with an iron cross, &c., on its summit.——It is estimated that eight persons, who have erected and endowed churches at their own cost during the present year, have together contributed 50,000*l.* to the Established Church.——On 5th inst. the foundation-stone was laid of a school and teacher's house at Winterton, Norfolk. Mr. Hume, M.P., entertained a numerous party of the friends of the undertaking at his seat in the neighbourhood, and the ceremony of foundation was performed by Miss Hume, in the presence of a large assemblage of the villagers. Mr. Kerr, of Norwich, officiated as architect of the building. The expense is partly met by grants from the Committee of Council and the National Society, the site being given freehold by Mr. Hume.——The first buildings of the Britannia-terrace, Yarmouth, were commenced on Wednesday week. A proposition is on foot to continue an esplanade and carriage-drive from Britannia-terrace to Victoria-terrace.——The foundation stone of a new Baptist chapel, to be erected at Barnsley, was laid on Friday week.——A new church is to be built for the townships of Moss and Fenwick, in the parish of Campsall. The intention is supported by Miss Brooke, of Gateforth House, Mr. G. C. Yarborough, Mr. F. B. Frank, and other landed proprietors.

CONGREGATIONAL CHAPEL, COURTENAY-STREET, PLYMOUTH.

MR. WIGHTWICK, ARCHITECT.



W.D.C. LAING Sc

CONGREGATIONAL CHAPEL,
COURTENAY-STREET, PLYMOUTH.

THE accompanying engraving represents the street front of a chapel just erected in Courtenay-street, Plymouth, and belonging to the denomination of Congregational Dissenters; the Rev. T. C. Hine having undertaken the responsibility of its erection by voluntary subscription. It is 65 feet long by 44 feet 6 inches in the clear; and when furnished with its proposed galleries, will hold about 900 persons. The façade only is by Mr. Wightwick, the body of the chapel being erected under the superintendence of Mr. Dwelley. The style is Anglo-Norman: the dressings are of Caen stone: the plain walling, of Plymouth marble, or lime stone. The cost of the building, apart from that of the land, is about 2,000*l.*

A large chapel for the Baptists, of Italian architecture, has recently been erected by Mr. Wightwick, also two spacious Episcopal chapels—one in the Tudor Gothic, the other in the Roman style.

THE ANNIVERSARY EXHIBITION OF THE CORNWALL POLYTECHNIC SOCIETY comprises—In the mechanical department, 53 articles; architectural and mechanical drawings, 128; sculpture, modelling, and paintings, 168; fancy work, 68; school productions, 149; and oil paintings for exhibition, 61.

GREAT CHAIN.—At Stourbridge, lately, Messrs. Bailey manufactured for a Liverpool firm a link chain for an incline: length, 2,400 yards, or rather more than 1¼rd mile; and weight, about 14 tons. It was removed by eight horses.

VENTILATION OF SEWERS.

AT a late meeting of the City Sewers Commission, a Mr. Elliott proposed as something quite new,—

"Premising that the sewers are constructed on the best principle, regularly flashed, with proper receptacles for discharges, and all gully holes, street and surface drainage, to be properly trapped,—that chimneys be erected at necessary and convenient distances, their interior hollow and of an inverted funnel shape, their height to be regulated by circumstances. At their tops, or other apertures, a jet of ignited burning gas may be kept constantly directed against their openings."

Now, this same plan was proposed in THE BUILDER some years ago, and has since been re-urged in various quarters.

The editor of the *Army and Navy Register* has just now *re*-discovered the same plan, and suggests that the gas lamp-posts made hollow should be used for the purpose. He remarks that,—

"The whole of the parish gas lamps might, by the adoption of this plan, become the best disinfecting medium, and the expense would be comparatively trifling compared with the great public good and preservation of the health of the poor in large towns. The only objection that can be made against the adoption of columns, which would prove useful and ornamental as gas lamp-posts, is the advantage possessed by gratings of allowing the sewers being flashed with rain water entering through them. The columns could, however, by a very simple plan, be made to open at the bottom on the side against which the

rain-water pressed, and the force of the current would prevent the escape of any considerable quantity of foul air, while the water continued to enter at the base of the column into the common sewer. On the pressure ceasing from the outside, the opening would be closed, and sufficiently air-tight to cause the noxious vapour to ascend and become purified by passing through the gas flame, before it mixes with the external air."

An experiment on the practicability of destroying the foul air in sewers by means of a shaft and furnace is being tried, we understand, in the Blackfriars road.

THE CITY OF LONDON SEWERS' ACT.

The city of London Sewers' Act, which is to come into operation on the 1st January, 1849, and continue in force two years and a session, contains, amongst others, the following provisions:—

It continues as at present the powers of constructing, cleansing, and repairing sewers, and of paving, lighting, cleansing, and improving the streets of the city, in commissioners to be appointed under the common seal of the City by the Court of Common Council.

A map of the City to be provided, on which all sewers are to be marked, and all water and gas mains to be set down thereon; this map to be altered as necessary from time to time.

Sewers are vested in the commissioners, who are empowered to construct new sewers, discontinue and stop up or alter old sewers, and to ventilate, cleanse, and flash such sewers as may be needed; and for this purpose to build, carry, and continue the same through any land, building, or other place, which is not a public way, upon making full compensation. They are also empowered to make such new openings into the Thames as they may think necessary, or otherwise to collect the refuse for the purposes of manure, but so that no nuisance be thereby caused.

The water companies having mains within the City are required to supply the commissioners with water (if they can do so without injury to the regular supply of water for domestic purposes), for flashing the sewers, and for watering or cleansing the streets and pavements, or for supplying any public baths, cisterns, &c., for the use of the poorer classes, upon remuneration by the commissioners for the same; and in case of dispute, such remuneration to be fixed by two justices. Penalty for the non-supply of water as aforesaid, 50*l.* a day, except through frost, drought, or unavoidable accident.

Private drains are to be cleansed and repaired at owner's or occupier's cost, under commissioners' directions, and whenever required by them so to be cleansed or repaired; and private drains are not to be destroyed or obstructed by the commissioners in any of their works, under penalties.

Commissioners may call upon the owner of any house or building not already drained into the sewer, to construct a drain therefrom into the sewer, if the same be within 50 feet of any part of such house or building, on a lower level than such house or building, under commissioners' directions; and no house hereafter is to be built within the City unless a drain be constructed to the satisfaction of the commissioners.

Persons about to build or rebuild any house or building, or to make any drain therefrom into the sewer, are to give fourteen days' notice in writing of such intention to the commissioners, who are to determine the level on which such house, building, or drain, is to be built or made; and any house or building taken down within 12 feet of the ground is to be deemed a rebuilding. Power is given to the commissioners to demolish any house, building, or drain, erected or made contrary to their directions, or without such notice being sent as above. Penalty on making or altering sewers or drains without commissioners' leave, 10*l.*

All gulley-holes, gratings, or other openings of sewers, are to be trapped so as to prevent the effluvia from the sewer exhaling therefrom; and any one sweeping, raking, or placing any soil, dirt, &c., into any sewer, or over any sewer-grate, liable to a penalty of 5*l.*

Any gas company permitting or conveying any washings, or foul or offensive refuse of gas to run into any sewer, shall forfeit the sum of 200*l.* a day.

Commissioners empowered to appoint one or more legally-qualified medical practitioners of skill and experience to inspect and report periodically upon the sanitary condition of the City, to ascertain the existence of diseases, more especially epidemics, and to point out the existence of any nuisance or other causes injuriously affecting health; also as to most efficient modes of ventilating churches, chapels, schools, lodging-houses, or other public edifices; to be called "The Medical Officer of Health," and to pay them such salaries as they think fit.

Commissioners empowered to appoint one or more inspectors of nuisances to inquire into and report all cases of nuisance, neglect of scavengers, &c., whose duties are for the preservation of due order and cleanliness.

Full power given to the Commissioners and their officers to enter any land, house, or premises, to carry into execution the purposes of this Act; and to cause the erection of privies, water-closets, cisterns for water, ash-pits, &c., in any premises, under penalties; and to regulate offensive trades, as candle-houses, &c.

No grave hereafter to be used in the City for interment, which shall not leave five feet clear of soil above the coffin; and any sexton offending, to be suspended from his office, and made liable to a penalty of 20*l.* Private vaults and catacombs excepted under certain limitations.

Persons causing offensive smells, or carrying offensive matter in the streets, made liable to certain penalties.

Commissioners empowered to light the public streets, and all public lamps vested in them; and persons damaging them made liable to certain penalties, or to make satisfaction for the same.

Pavements and other materials vested in the commissioners, and power given them to pave the streets and alter their levels, and alter the mains and pipes as they shall think best, excepting courts, &c., of which the freehold is vested in the owner of adjoining property, in which case, such owner is to pave and repair them.

Commissioners empowered to alter and fix the names of streets, to order the numbering of houses, &c., with penalties on persons obliterating or altering the same.

Commissioners are also empowered to prevent buildings projecting over the line of street from being rebuilt in such line; also to set back and remove various existing projections and obstructions, upon compensation being made; and to cause all ruinous and dangerous houses, &c., to be repaired.

THE USE OF DUTY-FREE BRICKS.

Having been asked on several occasions the extent to which bricks, *duty free*, can be legally used, we are glad to be enabled to give a statement on the subject, made by the Board of Excise some years ago, in reply to the following queries proposed by Mr. John Higgins, of Alford:—

"1st. Whether bricks (duty free) can be legally applied in building sea gowts, sluices, dams, culverts under roads and rivers, gate tunnels, and such other edifices as are exclusively appurtenant to, and necessary for, works of sewers?

2ndly. Whether they cannot be legally used in the construction and rebuilding of bridges crossing over public drains, in cases where the renewal of the bridge is rendered necessary by the enlargement or improvement of the drain?"

The answer was:—

"By 7 Geo. 4, c. 49, s. 3, it is enacted that it shall be lawful for any person or persons to make tiles or bricks for the sole purpose of draining wet or marshy land, without being charged or chargeable with any duty for and in respect of such tiles or bricks; provided that all such tiles or bricks shall be stamped or moulded by the person or persons making the same with the word 'Drain' in or near the centre of one of the surfaces of such tile or brick, in so plain and distinct a manner that the same may be easily and distinctly legible to any officer of excise or other person examining the same, both before and after such tiles or bricks shall have gone through the process of burning and become fit for use: and if any person or persons making such tiles or bricks as aforesaid, or any other person or persons shall sell or deliver, use or employ, any such tiles or bricks so stamped or moulded as aforesaid for any other purpose than that of draining wet or marshy land, he, she, or they, for every such offence shall forfeit and lose the sum of 50*l.*; such penalty to be recovered and applied as any other penalty incurred under any Act or Acts of Parliament relating to the duties of excise.

"The words of the clause will be seen to be very extensive; and, it being a remedial Act, extensive as they are, they are to be liberally construed. On this principle, the words, 'for the sole purpose of draining wet or marshy land,' in my opinion authorise the use of these bricks in the construction of all such works as are necessary for rendering the drainage effectual. Amongst these would be the works enumerated, sea gowts, sluices, dams, culverts under roads or rivers, gate tunnels, &c. For whatever work of this description is necessary for effecting or preserving the drainage, in the construction of it these bricks may lawfully be used. The collector has referred to one of the main drains being made applicable to purposes of navigation: the question in this case would be, are the bricks used in any works which are to improve the navigation of this sluice, or are they used for the preserving of it as a drain? In the former case, the bricks must be duty paid; in the latter, drainage-bricks may be used. The question as to the bridges is more doubtful; but this distinction seems to be proper to be made,—if by widening a drain, a bridge is required to be taken down and rebuilt, and it is done by those who are effecting the drainage there, in the reconstruction of it duty-free bricks may be used; but in any other repair of the bridge, by the county or parish, the bricks used must be duty-paid. With respect to rivers, I understand Mr. Higgins to allude to culverts under them: if any sluices in the river banks, or in any drains, are constructed for the purposes of irrigation in dry weather, and not for the purpose of draining or carrying off water from the lands, it will not be legal to use the drainage-bricks in the construction of such works. Mr. Higgins should be informed that if the bricks are sold or applied for any other purpose than those of the drainage, a penalty of 50*l.* is incurred."

THE BUILDING MANIA.

No one who has recently travelled with his eyes open in search of a home, a friend, or a little fresh air, in the environs of this overgrown metropolis, can have failed to observe that houses are springing up in all quarters for the reception of the ever-increasing population of densely-populated London. In the vicinity of other large cities, especially if they boast the advantage of a railway, the same observation will have been made. There is no lack of brick and mortar, east, west, north, and south; our cities are extending themselves into the country. Money is scarce; the whole nation is in difficulties; but houses spring up everywhere, as though capital were abundant—as though one-half of the world were on the look out for investments, and the other half continually in search of eligible family residences, desirable villas, and aristocratic cottages, which have nothing in the world of the cottage about them except the name.

Houses, we say, spring up everywhere in the outskirts of our great towns. A suburb, in these days, is one congeries of crude brick and mortar. It is the most melancholy thing in existence. Streets, squares, crescents, terraces, Albert villas, Victoria villas, and things of the same inviting character, stand up everywhere against the horizon, and minutely beseech us to take them. You may get a new house, of almost every conceivable pattern, and at any conceivable price down to 60*l.* per annum. You may take your choice, according to the length of your purse, of "noble reception rooms" and "neat parlours." But your purse must have some length to accomplish even this latter. There is a leaven of aristocracy in the parlour with folding-doors. We only build, now-a-days, for the gentry.

If a man has a little land, or a little money, or a little speculativeness, or a little unemployed timber, or a number of idle workmen, he straightway buildeth a villa. The villa mania is everywhere most obtrusive. You would smile, perhaps, at the vulgarity of the thing, if it were not for the certainty that the enterprising villa-builder must be building his fortune to death. Fortune must grow upwards, even more rapidly than they are growing downwards in these days, before all these splendid visions of wealthy tenants can be realised. Indeed, when we come to consider the number of pursy citizens that it will take to populate these snug suburbs, we are absolutely lost in wonder to determine where they can all come from.

We may talk about "signs of the times," but there is not one more surprising than this. As it was asked with reference to the astounding array of good husbands, fathers, citizens, &c., whom we meet, in monumental existence, in our churchyards, where all the bad ones were buried, so we are disposed to ask in these days, when we contemplate the number of houses in course of erection for the rich, where are the poor to be housed? One would think that there was no increase of population, lower down than the classes which rejoice in 500*l.* a-year, or that there was something of so cumulative a character in the times that every man must needs be on the look-out for the means of expending a larger income than he has heretofore had facilities of scattering abroad. But there is a fatal error in all this. An age of progress it may be, but not of financial progress. Retrenchment is the order of the day. We are fain to live over our shops. The trade of London is not now on the look-out for splendid suburban villas. There are enough, and more than enough, already in existence—unfurnished houses which we shall not soon see furnished—shells which will not very speedily be ready for occupation. But the poor want dwelling-places. Whilst we are exhausting our ingenuity to supply our villas with "every possible convenience," we are leaving our working-classes to the enjoyment of every possible inconvenience, in wretched stalls, to which men of substance would not consign their beasts of burden.—*Morning Herald.*

RAILWAY JOTTINGS.

FROM a misunderstanding as to money matters between Mr. H. H. Bird, a contractor on the Oxford and Wolverhampton line, and some of his subcontractors, the labourers employed by them have been threatening an outbreak at Moreton in Marsh. Headed by two subcontractors, named Pain and Bell, they marched into the town, 'determined to have money or be revenged;' but the police interfered, and the subcontractors were subsequently apprehended on the alleged charge of stealing eight cart-horses belonging to Mr. Bird, and valued at 160*l.*——The large bridge over the Tweed, below Galashiels, is nearly completed. It is about 300 feet long, and consists of five arches, two dry. The works between this and Melrose are nearly completed. ——The rightful proprietors of the Lancaster and Preston Railway can't be found, and the companies using it run their trains between Preston and Lancaster, it is said, without paying toll to any one.——The report of Mr. R. Stephenson to the Chester and Holyhead, on Wednesday week, stated that the construction of the second tube of the Conway-bridge was far advanced, and there was no doubt it would be ready for removal by the middle of October. Since then active preparations were made for floating the tube into its proper place, prior to being finally fixed upon the piers and abutments on 10th inst. The six pontoons on which the tube was to be cradled during the process of raising were in readiness, each being 95 feet long, 25 broad, and 8 deep—capable separately of sustaining 400 tons, though only for 220. The castings at the pier ends were completed, and the hydraulic machines for lifting ready. The total weight of the tube is 1,300 tons; span over the river, 400 feet; inside width of tube, 14 feet. About three-fourths of the masonry of the Britannia-bridge have been completed; and it is calculated that the first tube will be ready for lifting to its place in the course of next March or April. The cost of these structures has very much exceeded what was originally calculated on.—— The works at London-bridge for enlarging the station and widening the Greenwich viaduct have been resumed. The bridge to cross Bermondsey-street is rapidly progressing. The Gravesend branch is also in a forward state. It is expected to be opened early in the spring.——A Stockholm letter states that the works for the formation of a railway between Ocrebro and Hulst, the first undertaking of the kind in Sweden, were commenced on the 4th ult.

DISTRICT SURVEYORS' CHARGES.

SIR,—May I beg of you to let me know whether the district surveyor can claim a fee of me by my taking out an old sash, lowering the stall board, and putting in a new sash, for there has been nothing done to any other part of the front besides what I have named. I have another to do, and the district surveyor wants half a guinea for the first, and, as a matter of course, the same for the other.

Now, Sir, it appears to me that if this claim is legal, the public dare not renew their doors or shutters without giving notice to a district surveyor, and paying him a fee. The cost of both these jobs will not amount to 10*l.*, and must the hardworking tradesman pay 10 per cent. for the nominal supervision of such small alterations as these, when a duke, lord, or merchant, may build a house that costs 4,000*l.*, and this selfsame surveyor would be satisfied with a very different per centage, and about forty times the trouble? Now, this is a vile impost which ought not to be tolerated, nor enforced upon tradesmen; and I think that the fairest way would be to tax each building in proportion to its cost; for this is like all the taxes that ruin trade and commerce, for it prevents improvements in many quarters, and where they are most needed. It is a singular fact that there are no taxes in this country but what fall unmercifully on the middle classes. What, I ask, can be more ruinous to the building classes than the tax on bricks?—for if a man builds a house with 20,000 bricks in it, he has to pay 6*l.* for the same, no matter the quality. Then comes the window tax, as if an impious Government said, Thou shalt not have light and health, without we are handsomely paid for it; and so we might go on to fill a volume with similar complaints.—I am, Sir, &c.,

W. TRENCH, Builder.

Hackney, Oct. 4, 1848.

*** If nothing more be done than what is stated, the district surveyor ought not to require a fee.

METROPOLITAN COMMISSION OF SEWERS.

The Metropolitan Sewage Manure Company.—A special court was held on Thursday, last week, at the Court House, Greek-street, Soho-square, for the purpose of further considering what steps should be taken as to the fine of 500*l.* upon the above Company for cutting the bank of the Counters' Creek sewer without permission from the commissioners. Lord Ebrington, M.P., took the chair.

The minutes of the former meeting having been read, the clerk laid before the court reports, shewing that the Manure Company had come to the following resolution:—

"Resolved, that in the opinion of the board, the imposition of such fines is illegal, but having been given to understand that these proceedings had arisen from a misapprehension of the nature of the works, it was resolved that an application be made to the commissioners that a deputation of the board, attended by the secretary and solicitor, may be permitted to wait upon them, with a view to explain the matter to the commissioners, and endeavour to bring it to an amicable conclusion."

A deputation from the company was in attendance, consisting of Dr. Guy (chairman), Mr. Bailey, solicitor, Dr. Hodgkin, and several of the directors. Mr. Bailey then addressed the court at considerable length, contending that there was no wish on the part of the company to do any thing in opposition to the powers of the commissioners, whose powers, they were perfectly aware, were almost unlimited. In fact, every act of the company proved the deference paid by it to the powers of the commissioners. There was a great distinction, however, to be drawn in the powers exercised by them over closed sewers, only used for the purposes of sewage, to the control over the waters of a navigable canal. The works of the company, too, were as innocuous as he believed they were free from objection, and being under the impression that the commission was about expiring, they had determined upon making the communication with the canal; and their first act would have been to go to the new commissioners, no injury having been committed, and place the whole question before them. It might be, that the company had come to a wrong conclusion, but he must repeat that there was no desire to place themselves in opposition to the commissioners, knowing the great powers they possessed. He hoped the commissioners would take a favourable view of the question, and allow the works to be constructed, especially as the eyes of other companies for similar objects in other large towns were turned upon this, being the first incorporated by Act of Parliament. In fact, it had been expressed through Dr. Sutherland, that a company in Liverpool were anxiously waiting to know the result in this case, so that if successful the sewage of that town might be made useful for agricultural purposes. The market gardeners in the neighbourhood of London were anxious to make a trial of the sewage waters.

Lord Ebrington said, for himself, he felt some embarassment as to how to treat the question, as Mr. Bailey, in his address, had neither admitted nor denied the powers of the commissioners. He had been waiting to hear him arrive at this point, believing as he (Lord E.) did that the commissioners had as much power over the banks of the canal as they possessed over closed sewers. He did not clearly understand what the application of Mr. Bailey was.

Mr. Bailey believed that a fine would never have been imposed if a proper explanation had been given. The company was of opinion that there was an interregnum in the commission, and that the work might be done under a right they possessed as the freeholders of the bank of the canal, secured to them by Act of Parliament. "We come (said Mr. Bailey) to ask your consent, if we cannot make the communication without it, and if you levy a small fine, of course it will be paid under protest."

Lord Ebrington—What will be the nature of that protest? Will it be on the ground of hardship or of legality?

Mr. Bailey—Oh, of course, against its legality. I wish that to be clearly understood.

Lord Ebrington believing that he had a clear view himself of the question, scarcely felt disposed to say another word until the legality of the commissioners was recognised.

Mr. Bailey here, having conferred with some of the deputation, wished to retire for a few minutes, to allow the directors to consider the question as to the powers of the commissioners, which was acceded to; and on their return, Dr. Guy, as chairman of the deputation, said they had come to the following resolution,—"The directors of the Metropolitan Sewage Manure Company, assembled at the office of the Commissioners of Sewers, after mature consideration, have resolved that, feeling the inexpediency of involving their shareholders in an expensive law-suit, and placing every confidence in the public spirit of the commissioners, and wishing to give additional proof of their own desire to act in a spirit of conciliation, do hereby place themselves unreservedly in the hands of the commissioners in respect of the matter now in question, and request their permission to replace the pipe under the superintendence, and to the satisfaction, of the surveyor of the commissioners."

Mr. Leslie was of opinion that, if the company were to take the water of the Kensington Canal, to use it in a quantity so great that Mr. Norris would pay 1,800*l.* per year for it, it might interrupt the passage of barges two or three hours every tide.

The Rev. W. Stone looked upon the question as one of such great importance, that if they could guard against injury to the works of the commission, he was prepared to accede to the request of the company. If such could be done, he was prepared at once to move that permission be granted to the company for twelve months.

Mr. Chadwick seconded the motion, as a trial work, as they had evidence before them that cheaper and better modes could be adopted. At the same time, he thought experiments carried out under the authority of the commissioners would be the most satisfactory to the public and to the shareholders themselves. He was sorry for the delay that had arisen, but that was not the fault of the members of this commission.

A resolution to the following effect was then submitted:—"That under clause 8 of the Westminster Sewers Act, 10 & 11 Vict., this court feels itself disposed to give the desired consent for a period not exceeding fifteen months, the company constructing as a trial work, and subject to the approbation of the consulting engineer, surveyors, and officers of this court."

The motion was put and carried with but one dissentient.

It was also agreed that the fines of 500*l.* on the company, and 50*l.* on the contractor, should be remitted.

Miscellanea.

Von Rathen's compressed Air Locomotive.—In noticing an experiment with the Baron's machine, identical, if we mistake not, with one some weeks since recorded in "The Builder," even down to a stoppage at Wandsworth, a correspondent, who "hails with pleasure the ingenuity of the idea of fabricating, wholesale, a propelling power, as if it were cotton" [gun cotton?], says that "the plan of the inventor," so far as he understands it, "is to have large steam engines fitted up at stations, at nearly voluntary distances, to be regulated by the nature and extent of the traffic—say at 10, 20, or 30 miles the one from the other; also to have extensive stationary reservoirs at each of these stations, where the propelling power is extensively fabricated. The locomotive reservoir-tenders are filled with compressed air from these, of an adequate power calculated for the distance, and the locomotive is then charged." "The economy," he continues, "must be very great in thus fabricating the power wholesale, by one large steam-engine, for supplying or working ten or twenty locomotives, for which, in the present system, ten or twenty locomotive steam-engines have to be employed, and worked under the most disadvantageous circumstances. This might have been (long before the invention of the Baron Von Rathen) readily acknowledged; but the problem was to obviate the immense loss of power and difficulties hitherto experienced and never before resolved, in compressing large quantities of air to a high degree of condensation, and using it when expanded out to an uniform working pressure. This has been effected by the inventions of Baron Von Rathen." The apparatus we have already noticed. Without identifying our own opinion with that of our correspondent, or indeed offering any opinion on the merits of the Baron's persevering endeavours to perfect his new mode of propulsion, we may here remark that the idea reminds us of one some time since started for the fabrication of locomotive force by means of powerful springs, wound up by stationary steam-engines, and shipped—like the Baron's bottles of wind, or rather like the main-spring and drum of a watch,—with fitting apparatus, regulators, &c., on to some simple wheeled machinery for locomotion.

Coal and Gold.—A curious fact is stated in the Philadelphia newspapers. From the annual report of the Director of the United States Mint, it appears that the value of all gold coined during the twenty-four years prior to 1848, was 12,741,653 dollars, or somewhat exceeding the average sum of half a million a year—a very considerable addition to the stock of American wealth; but it appears, from the returns of the coal trade in Pennsylvania, that the value of this commodity brought to market in this State is annually equal to the above large amount: that last year, for example, the value of her anthracite brought down to tide-water—nearly 3,000,000 tons—was actually equal to the value of all the gold produced in the south during the twenty-four years. From this it appears that the northern (Maryland as well as Pennsylvania) "coal" mines are more valuable "gold" mines than those of that metal in the south.—*Miners' Journal.*

Figures.—Sir: Allow me to send you the rule by which the differences between the proportions and products of numbers are governed, which you allude to in your number of the 23rd September, under the head of "Figures."

If $\overline{n-4}$, $\overline{n-3}$, $\overline{n-2}$, $\overline{n-1}$, n, $n+1$, $n+2$, $n+3$, $n+4$, be any consecutive numbers, it is evident that

$n \times n = n^2$

$(n-1) \times (n+1) = n^2 - 1$

$(n-2) \times (n+2) = n^2 - 1 - 3$

$(n-3) \times (n+3) = n^2 - 1 - 3 - 5$

$(n-4) \times (n+4) = n^2 - 1 - 3 - 5 - 7$

&c. = &c.

$(n-s) \times (n+s) = n^2 - 1 - 3 - 5 - (2s-3) - (2s-1)$,

Hence, if $(n-s)(n+s)$ be the two sides of any rectangle, the area is always $= n^2 - 1 - 3 - 5, -(2s-3) - (2s-1)$, and if n, $n(n-s)(n+s)$ be any two rectangles, the difference of their areas $= 1 + 3 + 5 + 7 +, \; +(2s-3) + (2s-1)$.

Wm. Jeakes, Jun.

The Church of Notre Dame, at Bruges, remarkable for a spire 400 feet in altitude, contains a great number of pictures, and by a very judicious act, the name of the painter of each is placed on a tablet attached to the frame. The highest attraction is in a small chapel in the right side aisle, where are the magnificent tombs of Charles the Bold and Mary of Burgundy. The construction, including the reposing full-length figures, is of brass, chased to exquisite perfection, and entirely gilt, with the exception of the several armorial shields, which are richly enamelled in colours. The form and design of these tombs are well shown in a lithograph by Louis Haghe, among his scenes in Belgium. A little beyond, in a niche above an altar, stands a marble statue of the Virgin and Child, about 5 feet in height, said to be a work by Michaelangelo; the grandeur of the pose, the dignity of expression, the composition and the execution of the details, are of a very high order. It has always been attributed to this great master, and Descamps, in his travels, relates by what means it became placed in a church in Flanders. He says, "it was executed for the city of Genoa, but the ship which conveyed it was captured by a Dutch crusier and carried to Amsterdam. A merchant of Bruges purchased the group and presented it to the Church of Nôtre Dame." The description of the church, written by Beaucourt, contains the act of donation by one Pierre Mouscron, who constructed the altar and was interred in front of it, where an inscription records the event on the sepulchral stone. Behind the high altar a pair of iron gates inclose the choir; they are of hammered iron, bearing the date of 1699, as well as the name of the artist who made them,—Ryckam, of Ostend: for elegance of design and exquisite workmanship, they are works of art of a high order: every figure or ornament is in full relief and worked up to the most exquisite finish.—*Art-Journal.*

Houses of the Ancient Peruvians.*—All large towns had a square in their centre, where the religious dances were performed. From the square a certain number of regular roads and streets always ran in the direction of the four quarters of the firmament. There are great varieties in the construction of the houses. Small insignificant huts often stand close to a palace having twenty or twenty-five windows in one front. Private dwellings in the mountainous parts are built of unhewn stone, cemented with a very strong calcareous mortar. On the coast the walls are of brick. In the departments of Junin and Ayacucho, I met with the ruins of great villages, consisting of dwellings of a peculiar construction, in the form of a tower. Each house is quadrangular, with a diameter of about six feet, and seventeen or eighteen feet high. The walls are from one to one and a half feet thick. The doors which open to the east or the south, are only a foot and a half high, and two feet wide. After creeping in (which is a work of some difficulty), the explorer finds himself in an apartment about five and a half feet in height, and of equal breadth, without any windows. In the walls there are closets or cupboards, which served to contain domestic utensils, food, &c. Earthen pots with maize, cocoa, and other things, are still often found in these closets. The ceiling of the rooms is overlaid with flat plates of stone, and in the centre an aperture, two feet wide, is left, forming a communication with the second floor, which is precisely like the first, but has two small windows. The roof of this apartment has also an aperture, affording access to the third floor, the ceiling of which forms the roof of the house, and consists of rather thick plates of stone. The upper room is usually less lofty than the two rooms below it, and seems to have been used as a provision store-room. I found in one of these upper rooms the mummy of a child very well embalmed. The family appear to have lived chiefly on the ground-floors. The place for cooking is often plainly perceptible. The second floor was probably the sleeping apartment.

Interesting to Railway Contractors. *Ward* v. *Davy and Coomb.*—In this case (which was heard at the sitting of the County Court, Birmingham, and reported in the *Birmingham Journal*) the plaintiff claimed 19*l.* 14s. 11d. for work done by him on the South Staffordshire Railway, according to contract, at 12s. 6d. per chain, and was the balance claimed for fifty-eight chains, and other work done. The defendants endeavoured to shew that the contract had not been completed, and that the account had been settled. The contract and price were admitted by Mr. Coomb, but defendants attempted to deduct 2s. 6d. per chain without having the plaintiff a party to the new contract, while they were the cause of the incomplete execution of the original contract; and Kent, a witness for the defence, swore that he only knew from what his master told him. The price, according to the original contract, was therefore maintained. Ward was not able to read or write, or to ask a question, and was also unwilling to admit the settlement of the account, which his honour also affirmed did not appear to be settled by the statement produced by defendants. In his judgment his honour stated that it was the bounden duty of an employer to see that no mistake occurred between him and the persons employed by him; the agreement at 12s. 6d. per chain was proved and quite clear, and the same could only be set aside by the same parties who made it; it could not be set aside by one party only. The case contained three clear points, two (the contract and its execution) to be proved by the plaintiff, and the other (the payment according to the contract) to be proved by the defendants. This the defendants had failed to prove. Therefore the verdict must be for the plaintiff.

Improvement of Clerkenwell.—The street to Clerkenwell-green, in continuation of the new street from Farringdon-street, will shortly be completed under the Act obtained in the late session (11 & 12 Vict., c. 162—local). It seems that difficulties have arisen in raising sufficient money for the completion of the street, the security offered being deemed insufficient. The sum of 25,000*l.* advanced by the Treasury has been expended, as also 27,000*l.* borrowed on mortgage. It is now provided that money may be raised by the sale of the property to be completed, and the existing mortgages paid off, so that the subscriptions to be raised for the purpose do not exceed 20,000*l.* If the Commissioners of Woods and Forests, or the City of London, should carry the improvements into effect, the powers of the Act are to be transferred to them. Under this new Act, which has recently been printed, the street is expected in a short time to be completed.

Metallic Lava for Stone, Brick Tile, Cement, &c.—A patent has been taken out by Mr. J. Orsi for a composition of gravel or stone broken into small pieces, 3 parts; pounded chalk, 2 parts; tar, 1 part; wax, 1-10th. The tar is first melted in a cauldron, and the wax, gravel, or broken stone, chalk, and mineral colour are successively added. The artificial stone, or metallic lava, thus formed, is cast in moulds, either into solid blocks of any required form, or into hollow vessels, as troughs and tanks. It is also made into pipes, by rolling on a circular core of wood, enveloped in paper, three or more iron ribs being attached lengthways above the first coating, by winding wire round them, when a second coating is added, by rolling as before.—Also for ornamental tiles, bricks, and quarries, a combination of ground flint, 2 parts; marble broken into small pieces, 3 parts; resin, 1 part; wax, 1-10th part; and some mineral colour, 2-10th parts.—Also for cement from either combination in a comminuted state, and used while warm.

Value of Land in South Wales.—Landed property has for some time produced a very high price in South Wales,—a circumstance which the *Gloucester Chronicle* partly attributes to the effect expected to be produced by the railway, and partly to the great capabilities for improvement which much of the land in the southern division of the principality, especially in the western counties, possesses. Some considerable freehold estates in Carmarthenshire, which were sold by auction, by Mr. George Goode, at Carmarthen, last week, realised on an average from 35 to 40 years' purchase on the present rentals.

Health of Towns.—Steps are being taken for the adoption of the salutary provisions of the Health of Towns Bill at Cambridge and Ely, and also at Worcester and Birmingham.

* From Tschudi's "Travels in Peru."

PROJECTED WORKS.—Advertisements have been issued for tenders, by 6th November, for the erection of the right wing of the soldiers' barracks and outbuildings at Sheerness; by 21st inst., for the erection of three shops in Conduit-street, Chelmsford, Essex; by 23rd, for boiler and hot water apparatus required in St. Martin-in-the Fields workhouse, also for the erection of a chimney shaft and drains; by 21st, for the erection of a gentleman's residence, with stabling, &c., at Higham-hill, near Walthamstow; for 800 feet run of Herm or Aberdeen granite curb, a quantity of Yorkshire paving and granite crossings, all by 21st (separate tenders); by 21st, for a new hospital, and additions to the St. Alban's union workhouse; by a short time not limited, for the erection of a house and offices, at Dursley; by 18th inst., for an addition to the Belfast prison for debtors; by 23rd, for building and completing offices, sheds, platforms, fencing, &c., for roadside stations on the Staffordshire Union Railway; and by 21st, for deepening the tidal basin of the Forth and Clyde Canal Company, at Bowling Bay.

THE NUISANCES REMOVAL AND DISEASES PREVENTION ACT.—On the 4th ult. an Act of Parliament was passed (11 and 12 Vict., cap. 123), which must be adopted jointly with the Public Health Act, to effect certain sanitary regulations. The Act is to renew and amend the 9th and 10th Vict., cap. 96, for the more speedy removal of certain nuisances, and the prevention of contagious and epidemic diseases. On information in writing from two householders of the filthy condition of any building, or of the existence of any nuisance, an examination is to be made, and on a medical certificate, the owner to be summoned before a magistrate, who shall, upon proof, order the nuisance to be removed, and enforce the order if it is not obeyed: the expenses are to be recovered from the owner. Notice is to be given to the General Board of Health of the intention to open certain hospitals, and by the 9th section the Privy Council is empowered to issue orders for putting in force the Act for the prevention of epidemic diseases—"That when any part of the United Kingdom shall appear to be threatened with, or affected by, any formidable epidemic, endemic, or contagious diseases, measures of precaution should be taken with promptitude." After an order so made, the General Board of Health may give directions which the Poor-law Board may compel guardians to enforce. There are several penal enactments in the Act, with one to enter premises and put in operation the regulations of the General Board of Health. The imminence of the peril to be anticipated from the already rumoured advent of cholera to more than one part of the country, has induced the issue of an Order in Council, dated 28th ult., which now enforces this Act throughout the whole of Great Britain. The Poor-law Board, too, have issued a notification respecting its enforcement within the jurisdiction of the Poor-law Unions.

TENDERS

For the new Workhouse about to be erected for the guardians of the Erpingham Union, at West Beckham, Norfolk. Mr. W. J. Donthorne, architect.

August and Son, of Norwich	£7,775
Cushing and Co., of Elmham	7,549
John J. Darken, of Holt	7,450
Lucas and Co., of Lowestoffe	7,386

Each contractor took out his own quantities.

For House and Offices at Hornsey. Mr. F. Chambers, jun., architect. Quantities not supplied.

Eldred	£2,122
Higgs and Son	2,079
Carter	2,079
Newson	1,946
Park and May (accepted)	1,887

For erecting an Asylum, Croydon, Surrey, for the aged and decayed Freemasons. Mr. S. W. Daukes, architect.

Harris, Croydon	£5,750
Trego, Coleman-street	5,429
Wilson, Borough	5,375
Myers, Lambeth	4,891
Patrick, Lambeth (accepted)	4,868

TO CORRESPONDENTS.

"*Archi.*"—The wall belongs to the *owner* of the house (D), and not to the tenants. Treat with him.

Received—"A Contractor," "H. D.," "W. S., jun.," "J. D.," "R. K.," "F. C., jun.," "P. E. M.," "J. H.," "J. B. B.," "A Junior," "An Artist," "W. C. T.," "T. H.," "T. B. L.," "J. C.," "G. H. W.," "W. N.," "The History of Ireland, from the earliest period of the Irish Annals to the Rebellion of 1848, by Thomas Wright, Esq., M.A., F.S.A., illustrated by H. Warren, Esq., President of the New Water-Colour Society" (J. and F. Tallis, London, Edinburgh, and Dublin), Part I. "Journal de l'Architecture et des Arts Relatifs à la Construction" (Ch. Vanderauwera, Bruxelles), No. 16.

ADVERTISEMENTS.

REDUCED PRICES.—WILLIAM CLEAVE, of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK AND DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¾ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Moulding prepared by Machinery, Laths, &c.

Apply at W. CLEAVE'S Flooring Manufactory and Timber Yard, Wilton-road, Pimlico Basin, late C. MOORE and SON.

A REDUCTION in the PRICE of FLOOR BOARDS.—ALFRED ROSLING begs to inform the Trade and Consumers generally, that he has REDUCED the PRICE, and keeps constantly in stock a large and very general assortment of Prepared Floor Boards and Matched Boarding, laned to a parallel breadth and thickness, and fit for immediate use; also a variety of machine-prepared Mouldings, which are finished with great accuracy and attention to quality of workmanship.—Southwark Bridge Wharf, Bankside, and Old Barge Wharf, Upper Ground-street, Blackfriars.

THE LOWEST PRICES for CASH.—T. ADAMS (late S. DARE), MAHOGANY and TIMBER MERCHANT, Bermondsey New Road, near the Bricklayers' Arms, SEASONED FLOORING, MATCH-BOARDING FIT FOR IMMEDIATE USE, and MOULDINGS prepared by machinery, Cut Deals and Scantling of every dimension, Mahogany, Cedar, Rosewood, Wainscot, Elm, Beech, Oak, &c., in planks, boards, veneers, and logs; Pantile, Oak, and Fir Laths; Wheelwrights' Goods. All sawn and prepared goods delivered free of expense (except timber). Sawing charged at mill prices. Very extensive Drying Sheds.

MUIRS PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills,
Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

WOOD THOROUGHLY SEASONED in DAYS instead of YEARS, by DAVISON and SYMINGTON'S PATENTED PROCESS, at the Patent Desiccating Company's Establishment (for Seasoning, Sawing, and Planing Wood), at the Grand Surrey Mills, immediately adjoining the Commercial and East Country Docks, Rotherhithe. The new process ensures the entire removal of moisture, hardens the gums, prevents further shrinkage, and strengthens the fibre.—For scale of prices, or license to work the patent, or any further information, address, post-paid, or apply to ANGUS JENNINGS, Secretary.

The Patent Desiccating Company's Offices are REMOVED from 28, New Broad-street to No. 41, GRACECHURCH-STREET, CITY.

The Company's Agents are—Mr. WM. LANE, Lowell-buildings, Manchester (late of Stockport); Messrs. RANDOLPH, ELLIOT, and Co., Glasgow; Messrs. CLIFFORD and BROWN, Hull.

TIMBER-PRESERVING COMPANY.—(PAYNE'S PATENTS for the PRESERVATION of TIMBER AGAINST DRY ROT, FIRE, RAVAGES of WORMS, &c.)—The above Company are ready to enter into arrangements for the Preparation of Timber at any of their undermentioned stations, viz.:—

Whitehall Wharf, Westminster,	Lynn,
Fleetwood-on-Wyre,	Staines,
Wisbech,	Guildford,
Gateshead,	Southampton,
Barnstaple,	Hartlepool,
Leicester,	Darlington;

and they will erect the necessary apparatus wherever there is a considerable quantity of timber to be prepared.—Further particulars, with prices, may be obtained at the London Works, Whitehall Wharf, Cannon-row, Westminster.

BUILDERS AND CONTRACTORS.

TARPAULINS for COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 113, Fore Street, City, Manufacturer, by Appointment, to Her Majesty's Honourable Board of Ordnance.

NAILS and IRONMONGERY from BIRMINGHAM.—To BUILDERS, ARCHITECTS, &c.—Nails, Locks, and every description of Builders' Ironmongery, of the best quality, supplied at the lowest Birmingham prices, by FREDERICK BLYTH, Patent Cut Nail Manufacturer and General Factor, Edmund-street, Birmingham. Lists of prices forwarded upon application.

IRON FOUNDRY, 9, Brick-lane, Old-street, St. Luke's.—J. J. JONES having made great additions to his STOCK OF PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns, Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.

BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

IRON FOUNDRY,
168, DRURY-LANE, and CHARLES-STREET, DRURY-LANE
JOSEPH GLOVER,

Solicits the attention of the Trade to his extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION, consisting of those for every purpose, either structural or ornamental.

Wheel Pinion and Steam-Engine Patterns; Range Stove and Hot Plate Metal.

A stock of Rain-Water Pipes, Plain and O G Guttering, Air Bricks, Sash Weights, &c. &c.

A very superior description of Soot Door, particularly suitable for internal work, being perfectly secure, and not unsightly.

ESTIMATES given for IRON ROOFING and every description of Ironwork, complete to specification, and the work executed with every attention to quality and dispatch.

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FLEXIBLE INDIA-RUBBER PIPES AND TUBING,
For Railway Companies, Brewers, Distillers, Fire Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANIZED INDIA-RUBBER HOSE-PIPES are made to stand hot liquor, and acids without injury—do not become hard or stiff in any temperature (but are always perfectly flexible) and as they require no application of oil or dressing, are particularly well adapted for locomotive engines, railway cranes, fire engines, pumps, gas, beer engines, gardens, and all purposes where a perfectly flexible pipe is required. Made all sizes, from ¼ inch bore upwards, and of any length to order. Vulcanized India rubber garden hose fitted with brass-taps, copper branch and roses complete, ready to be attached to pumps, water-butts, or cisterns. Sole manufacturer, JAMES LYNE HANCOCK, Goswell-mews, Goswell-road, London.

N.B. Vulcanized India-rubber washers of all sizes for joints or hot-water and steam pipes, and vulcanized sheet rubber any thickness for all kinds of joints, and other purposes.

HOT-WATER WARMING APPARATUS, with the latest improvements, adapted for hot-houses, green-houses, pits, &c., continue to be supplied and erected by SPILLER and TAYLER, Battersea. Also improved warm-air apparatus for churches and other buildings requiring to be warmed only occasionally.—N.B. The parts being always ready, promptitude may be relied on.

NOTT'S PATENT STOVES, for warming Churches, Chapels, Shops, Warehouses, &c.—Architects, Builders, and Ironmongers are informed that the manufactory is REMOVED from Great Queen-street to Messrs. Benham and Sons, Wigmore-street, Cavendish-square, where there is also a large assortment of other Warm Air Stoves, and a very extensive variety of fashionable Stove Grates, Fenders, and Fire-irons.—N.B. Churches, Conservatories, and other Buildings warmed by hot water.

BURBIDGE and HEALY, 130, FLEET-STREET, LONDON, beg respectfully to inform the Building Public that they fit up COOKING ARRANGEMENTS for large Mansions, with patent appliances on scientific principles, which ensure greater economy and efficiency than hitherto attained. Also HOT WATER APPARATUS, upon improved and scientific principles, which they recommend for its peculiar safety for the Warming of Mansions, &c.

They fit up Laundries with Hot Water Apparatus, for Drying in a cleanly, expeditious, and safe manner. They also fit up BATHS with elegant arrangements, with every modern scientific improvement. Also Apparatus for the plentiful supply of Hot Water for Baths and general use of Mansions and large establishments.

OLD-ESTABLISHED WHOLESALE IRONMONGERY WAREHOUSE, Kitchen-range, and Stove-grate Manufactory 18, Cross-street, Walworth.

JOHN GRICE most respectfully solicits the attention of Architects, Builders, and Carpenters, to his Stock of Black and Bright Stoves, Kitchen Ranges, &c., &c.

Black Registers, from 6d. per in. and upwards.
Bright ditto with Black and Bright Bars, 3l. 10s. and upwards.
Self-acting Kitchen Ranges, with Oven and Back Boiler, Wrought Bars, Fittings Bright:—

3 ft.	3 ft. 6 in.	4 ft.
3l. 3s.	3l. 14s.	4l. 4s.

All articles made on the premises and warranted, and delivered free of expense within five miles of London. Bell-hanging in superior style, hung in secret, 9s. per pull.

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Strong Self-acting Kitchen Ranges, with Back Boiler and Oven, and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3. 6s.	£3. 13s.	£3. 19s.	£4.	£4. 10s.

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3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3.	£3. 15s.	£5. 5s.	£6. 10s.	£7.

Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.
Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.
Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

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Cottage Ranges, with Ovens and Boilers, 3 ft. 2 in., 43s.; 3 ft. 4 in 43s.; 3 ft. 6 in., 44s.
Self-acting Ranges, with Circular Oven and Back Boiler, best Wrought Bars and Bright Fittings,
3 ft., £3. 3s. 3 ft. 6, £3. 12s. 6d. 4 ft., £4.
Best Patent Cut Clasp.

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Best Sheet Floor Brads 13s. per cwt.
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Best Patent Sash Line.

4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.
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At F. R. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 35, Chiswell-street, Finsbury-square.
Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.
N.B Warehouse closes at Seven o'clock.

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RAIN-WATER PIPES, heads, shoes, and elbows, half-round and O G gutters, sash weights, railing bars, sink and stable traps and gratings, air bricks, close and open coal plates, scrapers, tile lights, balcony panels, barrow wheels, &c.

GAS and WATER-PIPES, bends, branches, Tee pieces, syphons, and lamp columns; also hot-water pipes for heating buildings and hot-houses, and FLANGE PIPES, with all the usual connexions. A large stock of the above CASTINGS at very low prices, at JONES'S, Iron Bridge Wharf, No. 6, Bankside, Southwark.

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PATENT TUBE WORKS, DARLASTON, STAFFORDSHIRE.

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CHUBB'S WROUGHT-IRON and FIRE-PROOF DOORS and FRAMES, for strong Rooms. A large stock of the above, of all sizes, made in the best manner, and of different strengths, fitted with CHUBB'S PATENT DETECTOR LOCKS, throwing from two to twenty bolts, constantly on sale, at very moderate prices. FIRE-PROOF SAFES of every size, and Patent Detector Locks and Latches for all purposes.—C. CHUBB and SON, sole Manufacturers, 57, St. Paul's Churchyard, London.

TO ARCHITECTS, BUILDERS, &c.

COPPER-WIRE CORD.—R. S. NEWALL and Co.'s PATENT IMPROVED COPPER-WIRE CORD for WINDOW SASH LINES, Hot-houses, Lightning Conductors, Hanging Pictures, Clock Cord, and various other purposes for which hempen rope has hitherto been used. This new and valuable Patent is fast superseding the use of the hempen cord, and is strongly recommended to all builders and other parties connected with the above. The Wire Cord may be had wholesale, and specimens seen at the office of the Patentees, No. 163, Fenchurch-street, W. T. ALLEN, Agent; or retail of G. and J. DEANE, 46, King William-street; E. PARKS, 140, Fleet-street; T. JONES, 63, Charing Cross, and GIBBONS and CO., 345, Oxford-street; also of all respectable Ironmongers.

GALVANIZED IRON FOR ROOFING, &c.—The Galvanized Iron Company beg to direct the attention of architects, surveyors, builders, and others, to their Patent Galvanized Iron, which is peculiarly adapted for ROOFING and BUILDING PURPOSES, especially for Tropical climates, being cheaper and more durable than zinc, lead, tin, or any other metal, calculating weight and strength. This fire-proof material has been used for roofing the new Houses of Parliament, shipbuilding and timber sheds in her Majesty's dock-yards of Deptford, Woolwich, Chatham, and Portsmouth; and at many of the principal Railway stations, gas works, &c. &c. This material is also admirably adapted for the construction of conservatories, fire-proof buildings, chain and wire rope bridges, corrugated doors, shutters, &c. &c. Specimens may be seen, and every information obtained at the Offices of the Company, No. 3, Mansion House Place, City—London. Works at Millwall, Poplar, Middlesex; Broad-street, Birmingham; Cobyn's Hall, near Dudley.

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ROMAN CEMENT.—Great complaints having been made of the inferior quality of some descriptions of Roman Cement, which for some time have been offered to the Building public, Contractors, &c., THOMAS FREEN and Co. beg to assure Architects, Surveyors, Contractors, Builders, &c., that the CEMENT manufactured by them continues in every respect the same as that produced at their Works during the last five-and-twenty years, and can, consequently, be warranted of the best quality.—Roman Cement Works, Canal-road, Kingsland-road.

KEENE'S PATENT MARBLE CEMENT forms an exceedingly hard and indestructible Stucco, which may either be prepared for paint, or finished in imitation of stone, by the addition of Portland or other stone dust.

It is a cheap and efficient substitute in place of wood for skirting, architrave, and other mouldings, in its application for which purposes it checks the progress of Fire and the attacks of Vermin.

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PORTLAND CEMENT.—J. B. WHITE and SONS, request reference to Nos. 284 and 285, pages 343 and 351, of "The Builder," for accounts of experiments on the strength of Portland Cements.—These trials show that for the practical purposes of building, the connecting power of Portland Cement exceeds that of Roman Cement in the proportion of four to one; thus marking it as the most fit material for turning the brick arches of Railway bridges and other works of a critical nature, while its firm adhesion to most sorts of stone, as well as bricks, combined with its eminently hydraulic properties, adapt it for such purposes as the building of sea and wharf walls, and the lining of reservoirs, cisterns, baths, &c. Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT, solely Manufactured by W. ASPDIN, Son of the Patentee. This Cement has been proved, for upwards of twenty years in the Thames Tunnel, to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, oxydate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also by their Agent at the Depôt, 1, Back Goree, Liverpool.

JOHNS and CO.'S PATENT STUCCO CEMENT and PAINT.—The attention of Architects, Builders, Plasterers, Painters, Merchants, and the Public generally is solicited to the many advantages attached to these celebrated Materials, which, for their appearance, durability, imperviousness, utter resistance to frost or heat, and general economy, distinguish them from all other cements and paints, and fully justify the confidence reposed in them, as shewn by the numerous testimonials received from public bodies and private individuals of the first importance.—Prospectuses and particulars may be obtained from the sole agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street.

PARIAN CEMENT, used as a Stucco, cannot easily be distinguished from Statuary or Parian Marble. It is fit for all the purposes of that beautiful material, and does not crack, warp, or effloresce in any degree. The fine quality will incorporate with the most delicate colours; is adapted to encaustic work, fresco, imitation of marble, and the most elaborate embellishment. So perfect are its setting or crystalizing properties, that the coarse quality, when applied to newly-built or damp walls, may be immediately polished, painted, or papered; and rooms rendered habitable before the materials ordinarily used would begin to dry.—Manufactured by CHAS. FRANCIS and SONS, Roman Cement Works, Nine Elms, London.

MARTIN'S PATENT FIRE-PROOF and ORNAMENTAL CEMENT—REDUCTION of PRICE.—The Patentees beg to inform their Friends and the Public that they have made arrangements which enable them to offer this invaluable cement at a considerably reduced price. It has now been before the public so many years, and has obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. The Patentees, however, feel called upon to observe, that by its use—from the greater amount of surface which a given quantity will cover, and the small amount of labour required in working it, a saving of 25 to 30 per cent. is effected as compared with other cements for internal use. Specimens shewing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement in any quantity obtained of the Patentees, Messrs. STEVENS and SON, at their Plaster and Cement Works, 186, Drury-lane, London.

EMERSON'S PATENT LIQUID CEMENT.—This VALUABLE AND ECONOMIC PAINT is ready for use, is simple in its application, and only ONE-SIXTH the cost of oil paint; for beauty it is pre-eminent over all other materials used on the fronts of houses, giving the exact appearance of FINE CUT STONE; it can be used at once on fresh Roman cement or other plastering, and is particularly calculated for country houses, villas, or gate entrances that have become soiled or dingy, which can be at once beautified in any weather, at a mere trifling cost.—Sold in casks of 1 and 2 cwt., at 8s. and 15s. each.

PATENT MINERAL PAINT.

A brilliant black paint, invaluable as a coating for SHIPS' SIDES AND BOTTOMS; also for all kinds of WOOD or METAL work, or the asphalte roofing felts, leaky roofs, spouts, and gutters, doors, sheds, railing, and all kinds of out-door work, and being perfectly waterproof, will preserve their surfaces from atmospheric influence and decay,—requires no preparation, and will dry in a few hours.—Price 2s. per gallon.

PATENT ASPHALTE ROOFING FELT of the best quality, at one penny per square foot, in pieces 25 yards long, and 32 inches wide.

GEORGE LEAR and Co., Sole Agents for the Patentees, No. 16, Basing-lane, Cheapside.

CAST-IRON PIPES, IRON WORK FOR OVENS, &c.

RAIN PIPES, &c.—F. A. TIDDEMAN, Purfleet Wharf, Earl-street, City, near Blackfriars-bridge, keeps a large stock of Rain Pipes, Heads, Shoes, Elbows, &c., half round and O. G. Gutters, Socket Pipes for Water or Gas, Flanch Pipes, Sash Weights, and other Castings; Iron Work for Baker's Ovens of every description, fitted complete, to be had in sets or in parts.—Prices equal to all competition. Contracts taken to any extent.

ARCHITECTURAL ENRICHMENTS.

BIELEFELD'S IMPROVED PAPIER MACHE, which has been almost universally adopted for architectural decoration, has been patronized by her Majesty, by the Honourable Commissioners of Board of Works, by the highest of the nobility and gentry, and by the most eminent architects of the day. It has been used at the royal palaces, at the present House of Lords, at Dublin Castle, at Drayton Manor, the new Conservative Club House, Grocers' Hall, &c., also at the British Museum and Pantheon Bazaar, where it has been extensively used for some years, and an inspection will sufficiently establish its superiority over every other kind of composition, both for beauty and durability. Designs prepared for the decoration of ceilings, panelling of walls, &c. A volume of enrichments, containing more than 1,000 designs of the papier maché ornaments, with a tariff, price 4l.—Works, 15, Wellington Street North, Strand.

TO BUILDERS AND OTHERS.

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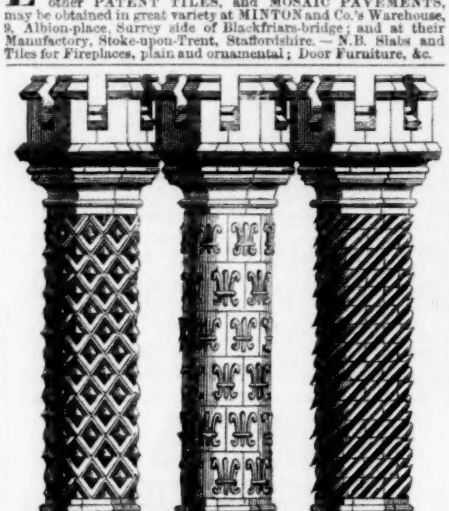

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The business of this establishment is so arranged as to be a great advantage to the trade, from the great variety of Chimney-pieces and Monuments always on view, and sold at a very low charge; also the liberal commission always allowed to the trade.

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W. WRIGHT and Co. deem it important to state the Anston Stone offered by them is from the same bed as that from which the New Houses of Parliament are being constructed, a hedge alone being the division of the properties of the Duke of Leeds and W. Wright and Co.

Facilities are at hand for forwarding it to all parts of the Kingdom.—Application to be made to W. WRIGHT and Co., Anston, near Sheffield, Yorkshire.

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STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

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Groups, statues, friezes, capitals, panelling, pinnacles, finials, terminals, Tudor, and other chimney shafts, balustrading, fountains, fonts, tazzas, vases, coats of arms, devises, and every description of architectural ornament, at prices in many instances nearly half the cost of stone.

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